

# Policy Options for Secondary Road Construction and Management in the Commonwealth of Virginia

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*Submitted to the Commonwealth of Virginia Secretary of Transportation*

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## Foreword

I am pleased to present this research on the Commonwealth's secondary road construction and management policies. In light of continuing reductions in construction and maintenance budgets, the report is intended to help policy-makers identify options for improving the condition and operation of the secondary system.

This research, produced by Professor Jonathan Gifford, emphasizes practical solutions to a critical policy issue. In that way, it exemplifies the mission of George Mason University's School of Public Policy (SPP).

Our 70 full-time teaching and research faculty work at the crossroads of government, private industry, non-profit activity, and academic research to tackle policy issues of immediate and long-term importance. They produce research and policy recommendations on a range of issues, including entrepreneurship, health care, science and technology, national security, transportation and infrastructure, regional planning and governance.

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For all these reasons, SPP has earned national distinction and continues to play a vital role in creating the intellectual and human capital that the Commonwealth will need as it addresses the challenges and opportunities of the 21<sup>st</sup> century.

Edward Rhodes  
Dean, School of Public Policy  
George Mason University

## Executive Summary

This report reviews the Commonwealth's secondary road policy in order to identify options for revising policy to improve the condition and operation of the secondary system in light of continuing reductions in secondary construction and maintenance budgets. The report identifies 10 findings related the program, as follows:

1. The secondary road system as currently configured is not an appropriate administrative apparatus for maintenance and operations of the roads it contains.
2. The condition of the secondary system is deteriorating.
3. In recent years the VDOT secondary construction program has provided minimal funding support for constructing new roads in the secondary system.
4. The current budget allocation process for maintenance funds gives relatively low priority to the secondary system.
5. The current "devolution mechanisms" for construction and maintenance are not attracting county participation.
6. County officials generally agreed that state payments, as currently set under Virginia Code, will not cover all the costs of a local road program for maintaining secondary roads.
7. Many counties have limited capacity to assume secondary maintenance responsibilities, both in fiscal and institutional terms.
8. Local control over local roads and streets affords significant opportunity to integrate decision-making over transportation and land use and improve development outcomes, and the timeliness of achieving them.
9. Local option transportation taxes have been successfully used throughout the United States to generate revenue for local road construction and maintenance programs.
10. Current secondary road acceptance procedures have and may continue to add roads to the secondary system in ways that exacerbate the maintenance budget shortfall.
11. The August 2010 audit of VDOT by Cherry, Bekaert and Holland, L.L.P., provides a number of findings and recommendations related to the secondary road program.

Several policy options are identified and discussed:

1. Maintain Current Policy on Construction and Maintenance Devolution
2. Maintain Current Policy with Enhanced Budgetary Priority for Secondary Road Construction and Maintenance
3. Restructure the Secondary Road System
4. Consider Performance-Based Maintenance Contracting on the Secondary System
5. Empower Counties to Raise Revenues
6. Impose Devolution on All Counties
7. Impose Devolution on Select Urban Counties

8. Take Maximal Advantage of the VDOT Performance Audit
9. Consider possible hybrid strategies such as
  - a. Performance-based maintenance contracting in combination with devolution and system reclassification in select urban counties or parts of urban counties.
  - b. Performance-based maintenance contracting in groups of rural counties.

These options are intended to assist the Commonwealth's policy makers in confronting the challenges posed by the current secondary system.

The Office of the Virginia Secretary of Transportation provided financial support for the development of this report. The views expressed here and any errors are solely the responsibility of the author.

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## Introduction

The Commonwealth of Virginia is served by a state highway system of 69,114 miles, consisting of four major administrative systems: Interstate, primary, secondary and urban (see Table 1). This report focuses on the secondary system, which since the 1930s has been primarily a responsibility of the Commonwealth. With the exception of two urban counties (Arlington in northern Virginia and Henrico near Richmond), no county has direct financial or operational responsibility for its secondary roads. With these two exceptions, the

**Table 1: Virginia Highway by Administrative System (2007)**

System	Centerline Mileage		Lane Mileage Maintained by VDOT		Avg. No. Lanes
	Miles	% Total	Miles	% Total	
Interstate	1,119	1.6	5,402	4.3	4.8
Primary	7,999	11.6	21,674	17.3	2.7
Secondary	48,280	69.9	97,629	77.9	2.0
Urban	11,346	16.4	0	0.0	-
Toll*	40	0.1	225	0.2	5.6
Frontage	330	0.5	661	0.5	2.0
Total	69,114	100.0	125,366	100.0	1.8

\*Note: Centerline mileage and lane-miles for toll roads maintained by VDOT are for 2011 and were provided by Jennifer Debruhl, VDOT Local Assistance Division (5/16/11).

Source: Virginia Department of Transportation, "State Highway Systems Mileage Tables" (<http://mileagetables.virginia-dot.org>, accessed March 10, 2011).

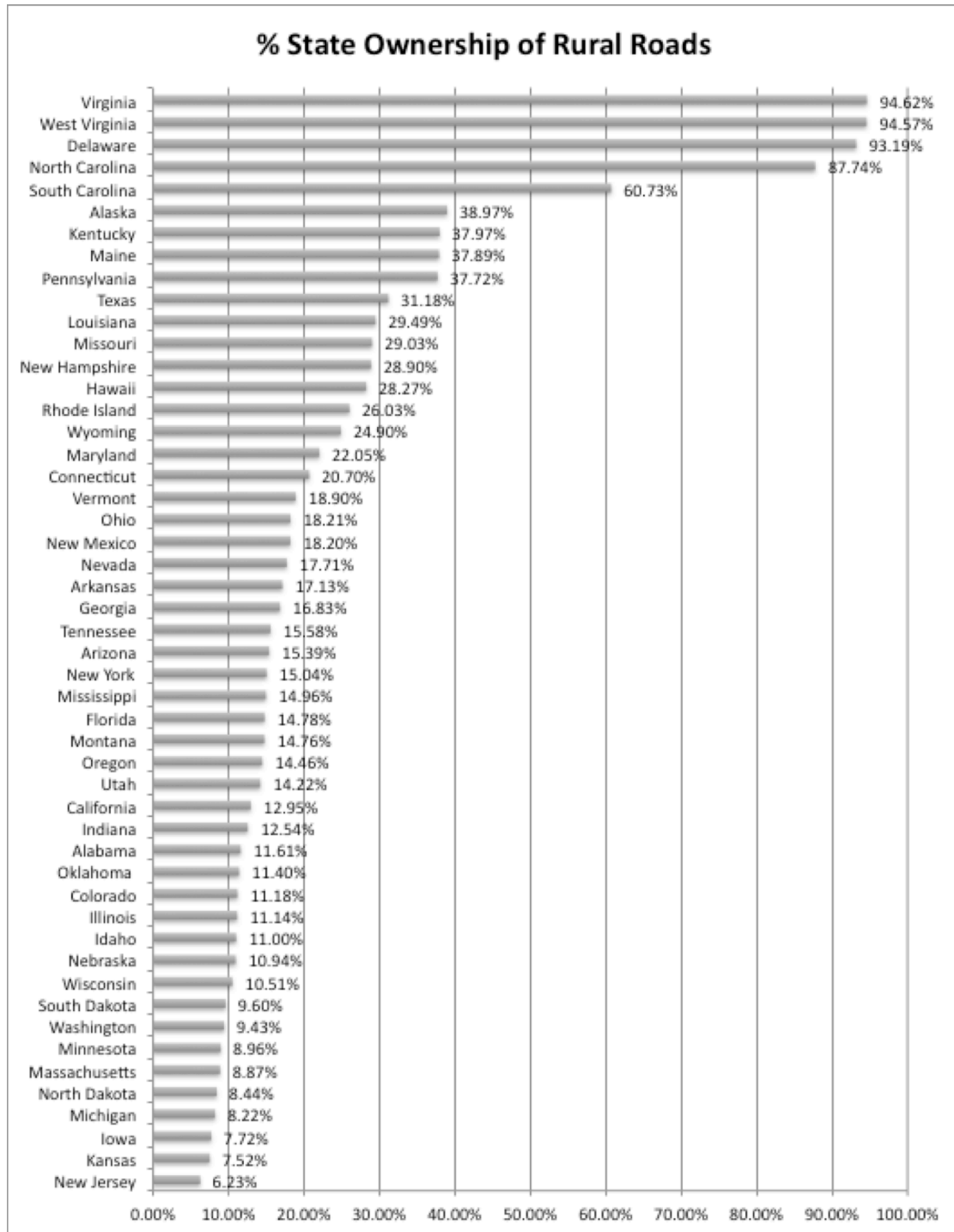
Virginia Department of Transportation (VDOT) has responsibility for the "control, supervision, management and jurisdiction"<sup>1</sup> of the Commonwealth's 97,629-lane-mile secondary road system.<sup>2</sup>

Virginia is one of four states in the U.S. (West Virginia, North Carolina and Delaware) where the state department of transportation (DOT) is responsible for most roads. Wisconsin uses an opposite approach, where the state DOT owns none of its own equipment, and all responsibility for road maintenance is contracted out to county highway departments. The remaining states take responsibility for the major roads in the state, and local governments (or in some cases toll authorities or other state agencies) are responsible for the balance (see Figure 1). Virginia leads the nation with 94.62% of its rural roads being owned by the state, followed closely by West Virginia (94.57%). Half the states own 15% or less of their state's rural roads.

<sup>1</sup> *Code of Virginia*, §33.1-69.

<sup>2</sup> Secondary lane mileage has increased slightly since 2007 to 98,719. Virginia Department of Transportation, *Biennial Report on the Condition of and Investment Needed to Maintain and Operate the Existing Surface Transportation Infrastructure for FY 2011 and FY 2012*, 4.

Figure 1: Fraction of Rural State Road Network Owned by State Highway Agency



Source: U.S. Federal Highway Administration, *Highway Statistics 2008* (Washington, D.C., 2009), Table HM-10.

In order to investigate policy options for secondary roads in the Commonwealth of Virginia, a study team from the George Mason University School of

Public Policy reviewed the research literature and available technical studies, and interviewed state and local officials and other stakeholders and subject area experts. A list of interviews appears in Appendix 1.

Policy evaluation ideally focuses on programmatic outcomes, rather than inputs (budgets and other resources) or outputs (e.g., miles of road paved or number of signs replaced). In the case of a road system, programmatic outcomes include pavement quality, bridge quality, emergency response times, the condition of roadway markings, signs, culverts and drainage ditches, and roadside conditions that affect visibility like tree and shrub pruning and mowing.

More fundamentally, the “outcomes” of the Virginia’s secondary road system, or any road system, are not the physical assets themselves but rather the social and economic value that users are able to derive from them. More fundamental outcomes also include a wide range of environmental and community impacts, including access to land and all the goods and services such access affords, property damage, casualties, noise, wildlife mortality, habitat disruption, and storm water runoff, as well as the impacts of maintenance activities themselves.

One of the most significant outcomes of local roads and streets is their relationship to land use. There is a large and growing recognition that successful development is inextricably tied to transportation facilities and services at every spatial scale, from the parcel level, to the block level, to the neighborhood level, to the corridor level, to the regional level.

The transportation and urban design community is increasingly focusing on street design and traffic operations that accommodate a wide range of users, including not only motorists and trucks, but also pedestrians of all ages and levels of able-bodiedness, cyclists, and transit. “Complete Streets,” as they are sometimes called, involve a complex set of design elements, including provisions for parking, bicycle lanes, transit stops and stations, sidewalks, street furniture and other appurtenances.

With very few exceptions, the secondary system is the local road and street system for the entire Commonwealth, including some highly developed urban and suburban counties such as Fairfax and Prince William. In these more urban and suburban communities, the transportation-land use connection may be particularly important as an outcome of the Commonwealth’s secondary road system policy.

This report begins with a discussion of the secondary road system and the challenges it poses, then discusses the development of secondary road policy, past restructuring initiatives and other relevant policy developments. The next section outlines findings, and the following section identifies and discusses policy options. Concluding remarks follow. Note that this report does



not reflect legislative changes enacted in the 2011 Virginia General Assembly unless noted.

## The Secondary Road System Challenge

The Virginia secondary system includes roads that are highly diverse both in terms of their physical characteristics and their functional use. The system includes unpaved rural roads, subdivision streets and cul-de-sacs, and also a small but significant number of arterial streets and divided highways. Table 2 shows the diversity of the physical characteristics of the secondary system. It includes 386 miles (0.8%) of divided highway and 20,987 miles (43%) of 2-lane roads of 16 feet or less in width. Twenty percent of the secondary system (9,527 miles) is unpaved.

**Table 2: Virginia Secondary System Mileage by Surface Width**

<b>Surface Width</b>	<b>Centerline Mileage</b>	<b>%</b>
Divided	386	0.80
4 or more lanes	133	0.27
3 lane	100	0.21
24 ft & over	4,077	8.44
22 ft	2,422	5.02
2 lane	6,990	14.48
18 ft	13,172	27.28
16 ft & less	20,987	43.47
1 lane	14	0.03
Total	48,280	100.00

*Source: Virginia Department of Transportation, "State Highway Systems Mileage Tables" (<http://mileagetables.virginia.gov>) (accessed January 2011).*

These physical differences in the secondary network reflect substantial differences in how the roads are used. The term "functional classification" refers to a process whereby roadways are assigned to a set of defined "functional classes" that correspond to the way in which a roadway is used rather than how it is classified or paid for administratively. Functional classification was developed by the Federal Highway Administration in the 1960s and became a requirement for federal aid in 1973.<sup>3</sup>

VDOT's secondary system is a very mixed bag of functional classes, including urban functions and rural functions, arterial functions (i.e., serving inter-regional and interstate travel), collector functions (serving largely intra-county and shorter distance travel), and local (providing access to land and business) (see Table 3). Note that so-called "urban" sections of the secondary sys-

<sup>3</sup> Grimes and Howe, *A plan for reassigning roads to Virginia's administrative classification system using the federal functional classification system*, 2.

tem are not part of VDOT's urban system because they are in areas categorized as urban by federal definitions but not inside the boundaries of Virginia cities and towns exceeding 3500 in population. Roads inside cities and towns larger than 3500 are part of the Commonwealth's urban system.

Administratively – that is, for purposes of statutory funding and assignment of responsibility – all of the Commonwealth's secondary roads are treated the same. It is difficult to differentiate statutorily between state support for a rural local road and a multi-lane arterial road if both are on the secondary system.

Another important feature of the Commonwealth's secondary system is that the law requires acceptance of new roads and streets into the system as long as they meet VDOT standards. Such additions arise from newly built streets in residential subdivisions or commercial areas located outside of cities and towns larger than 3500. In the decade between 1998 and 2007, VDOT accepted an additional 1,454 miles into its system, an increase of 3%.<sup>4</sup>

**Table 3: Virginia Secondary Functional Classifications (2007)**

<b>Functional Class</b>	<b>Miles</b>	<b>% Total</b>
Urban Freeway/Expressway	-	0.000
Urban Other Principal Arterial	356	0.074
Urban Minor Arterial	587	1.215
Urban Collector	1,136	2.352
Urban Local	6,364	13.181
Total Urban	8,122	16.822
Rural Principal Arterial	1	0.001
Rural Minor Arterial	21	0.044
Rural Major Collector	6,920	14.333
Rural Minor Collector	2,348	4.864
Rural Local	30,868	63.936
Rural Total	40,1589	83.178
Grand Total	48,280	100.000

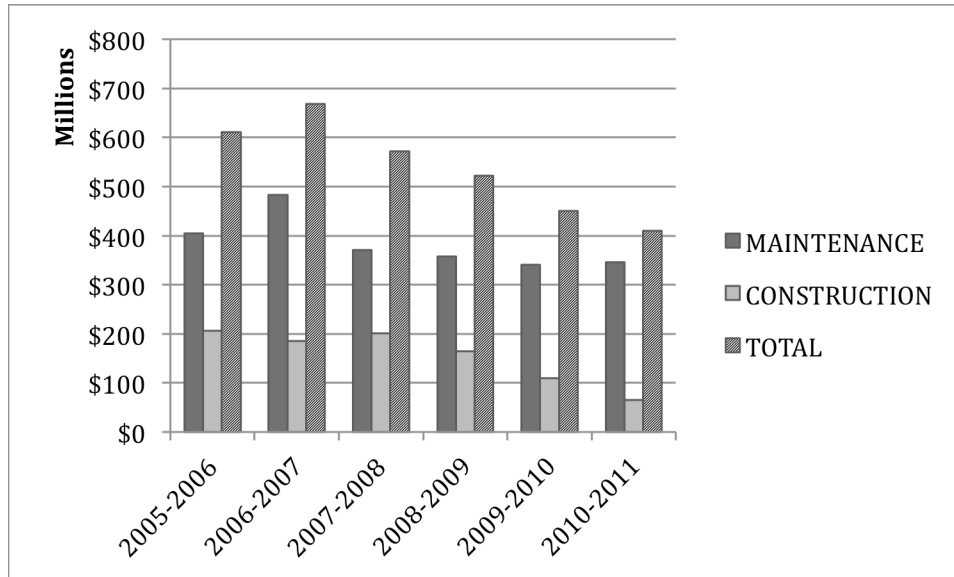
Source: Virginia Department of Transportation, "State Highway Systems Mileage Tables" (<http://mileagetables.virginiadot.org>, accessed March 10, 2011).

The resources devoted to maintaining and improving secondary roads are considerable. For FY 2011, VDOT has allocated \$410 million of its total budget of \$3.3 billion (12%) on secondary road construction and maintenance.<sup>5</sup> Allocations of this budget by maintenance category for FY 2010 are shown in

<sup>4</sup> Virginia Department of Transportation, "Mileage Tables - State Highway Systems."

<sup>5</sup> Virginia Department of Transportation, *Fiscal Year 2010-2011 VDOT Annual Budget*, 19, 21.

Figure 2: VDOT Secondary Road Budgets, FY2006-FY2011



Source: VDOT annual budgets, 2005-2011.

Table 4: Secondary Maintenance Budget Categories (2010)

Category	2010 Budget	
	\$ millions	%
Road surfacing services (minor repairs)	64	19
Road surface investment (major repairs)	76	22
Bridge servicing (minor repairs)	13	4
Bridge investment (major repairs)	45	13
Drainage/slopes	31	9
Vegetation control	31	9
Snow and ice control	30	9
Pavement markings	7	2
Signs	6	2
All other services (including reserves)	35	10
<b>TOTAL</b>	<b>338</b>	<b>100</b>

Source: 2010 VDOT budget supplement (May 2010), pp. 108-09.  
Note: The FY 2010 budget for secondary maintenance was later adjusted to \$340 million. Virginia Department of Transportation, *Fiscal Year 2010-2011 VDOT Annual Budget*, June 2010, [http://www.virginiadot.org/about/resources/VDOT\\_Budget.pdf](http://www.virginiadot.org/about/resources/VDOT_Budget.pdf).

Table 4. Pavement improvements received 41% of the budget, and bridges 17%.

Budgets have dropped, especially construction budgets, as the downturn in the economy has reduced revenues (see Figure 2). In the last 6 years, budgets for secondary road construction and maintenance have diminished by a

third, from \$669 million in FY 2007 to \$410 million in FY 2011. Most of that reduction was in the construction program, which declined by 65% (from \$185 million to \$65 million). But the maintenance budget also dropped by 29% (\$483 million to \$345 million).

Revenues to support the construction and maintenance budget are derived from the Commonwealth's two funds, the Highway Maintenance and Operating Fund (HMOF) and the Transportation Trust Fund (TTF). The HMOF primarily raises money through motor fuel taxes and vehicle licensing and sales taxes. The TTF largely relies on so-called "special session" revenues (i.e., taxes authorized in a 1986 special session of the General Assembly) and federal disbursements. In 2010, out of expected total state transportation revenue of \$3.7 billion, the HMOF was budgeted to receive 36% and the TTF 28%.<sup>6</sup>

Construction spending from the TTF is allocated first to provide the state match to federal funds (usually 80% federal with 20% state match). Next, 5.67% of the remaining funds are provided for unpaved roads and distributed to localities. Remaining funds are allocated by code to 40% for the primary system, 30% for the secondary system, and 30% for the urban system.<sup>7</sup> In both FY 2010 and FY 2011, no construction funds were available for distribution to construction districts and localities.<sup>8</sup>

The code also dictates that maintenance functions receive funding priority.<sup>9</sup> As currently structured, when maintenance revenue to the HMOF falls short, VDOT draws on its share of TTF funds to cover the shortfall. The 2004 "VTrans2025" report identified this "crossover problem," finding that, "[b]y 2018, all of state construction funds will be used for maintenance."<sup>10</sup> The same conclusion was reached in the planning for 2035.<sup>11</sup> In FY 2011, transfers from the TTF to the HMOF exceeded \$500 million of the HMOF's expected \$1.8 billion in revenue.<sup>12</sup>

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<sup>6</sup> Ibid., 8.

<sup>7</sup> *Overview and discussion: candidate allocation formula analysis conducted by VDOT and the Virginia Transportation Research Council*, 2.

<sup>8</sup> Virginia Department of Transportation, *Fiscal Year 2010-2011 VDOT Annual Budget*, 15.

<sup>9</sup> *Code of Virginia*, §33.1-23.1.

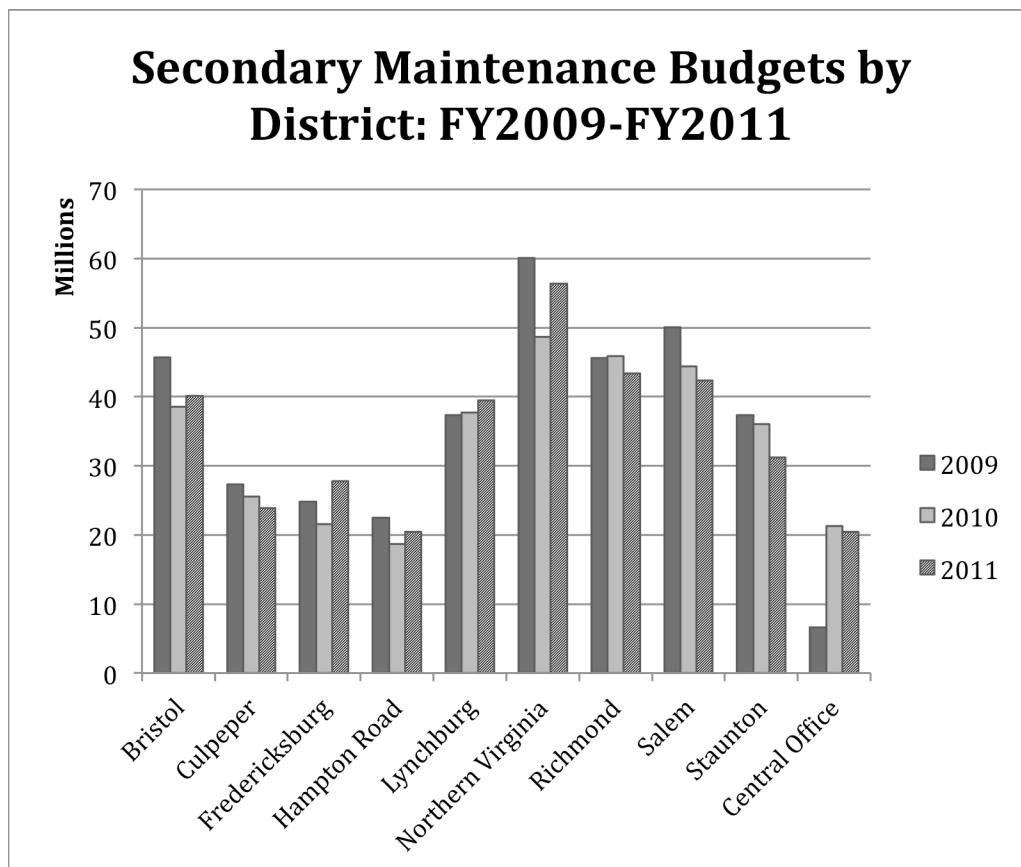
<sup>10</sup> Virginia Office of Intermodal Planning and Investment, *VTrans2025*, 2.

<sup>11</sup> Jack Faucett Associates, *Transportation funding: paying for performance*, 33.

<sup>12</sup> Virginia Department of Transportation, *Fiscal Year 2010-2011 VDOT Annual Budget*, 7.

Reduced budgets are a reflection of declining revenues for transportation in Virginia collected through fuel and vehicle taxes. For example, while in fiscal year 2008 the motor fuel tax generated \$777 million dedicated to the HMOF, this amount dropped to \$710 million in 2010. Further reflecting the impact of the economic recession, vehicle sales and use taxes dropped more steeply, over \$100 million between FY 2008 and FY 2010. Despite nearly a quarter billion dollars more in transfers from the TTF to the HMOF in FY 2010 than in FY 2008, the fund had a total revenue level in FY 2010 that was lower than

**Figure 3: Secondary Maintenance Budgets by District, FY2009-FY2011**



Source: Virginia Department of Transportation, *Fiscal Year 2008 - 2009 VDOT Annual Budget Supplement*, VDOT Annual Budget, February 2009, [http://www.virginiadot.org/about/resources/FY\\_2008 - 2009\\_Supplement.pdf](http://www.virginiadot.org/about/resources/FY_2008_-_2009_Supplement.pdf); idem., *Fiscal Year 2009 - 2010 VDOT Annual Budget Supplement*, VDOT Annual Budget, May 2010, [http://www.virginiadot.org/about/resources/FY\\_2009 - 2010\\_Budget\\_Supplement.pdf](http://www.virginiadot.org/about/resources/FY_2009_-_2010_Budget_Supplement.pdf); idem., *Fiscal Year 2010-2011 VDOT Annual Budget Supplement*, VDOT Annual Budget, June 2010, [http://www.virginiadot.org/about/resources/FY\\_2011\\_Budget\\_Supplement.pdf](http://www.virginiadot.org/about/resources/FY_2011_Budget_Supplement.pdf).

FY 2008. The overall drops in funding translated into the observed decreases in the secondary maintenance budget, which rebounded only slightly from \$340 million to \$345 million in 2011.<sup>13</sup>

The maintenance and operations budget is developed through a process that relies on a number of inputs, including the most recent needs assessment (conducted biennially), historic budgets, and consultation with VDOT field managers, Central Office program managers, and agency executives, resulting in a budget recommendation for each of VDOT's 9 districts. Each district then develops detailed budgets, which are then reviewed by the Central Office and executives,<sup>14</sup> with final approval from the Commonwealth Transportation Board. Within each district, budgets are distributed internally among VDOT residencies within the districts, which spend the funds on specific service and investment categories.

Secondary maintenance budgets for each of VDOT's 9 districts varied between \$20 million and \$50 million in 2010. The Northern Virginia district received \$60 million in 2009, which dropped to \$48 million in 2010. In general, districts saw their budgets drop around \$2 to \$5 million in 2010 compared to 2009. In turn these figures were already depressed compared to earlier years. Budgets for 2011 rebounded somewhat (see Figure 3).

While budgets provide a framework for each district, many of the drivers of actual expenditures are unpredictable, particularly emergency response (e.g., snow and ice treatment). As a result, actual expenditures may vary considerably from budgets, and district administrators are responsible for staying at or below their budget allocations. Because of historic snowfalls in 2010, for example, snow removal consumed approximately \$180 million over the budget in the 9 districts, and districts had to cut budgeted maintenance in order to compensate.<sup>15</sup>

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<sup>13</sup> Ibid., 21.

<sup>14</sup> Sorrell, "Maintenance and operations program for FY 2011 budget," 16.

<sup>15</sup> Connie Sorrel, personal communication (March 2011).

**Table 5: Secondary Maintenance Expenditures by County Type, Net of Emergency Response Expenditures: 2001-2006 Average**

<b>County Type</b>	<b>Total M&amp;O Expenditures Net Emergency Expenditures (2005 \$000)</b>	<b>Total Secondary Lane Miles</b>	<b>\$/lane- mile</b>
Northern Virginia	\$58,501	9,555	\$6,123
Urban/High Growth	\$32,977	11,112	\$2,968
Rural Low Traffic	\$42,494	17,672	\$2,405
Rural High Traffic	\$48,509	18,006	\$2,694
Rural Mountain Low Traffic	\$55,900	18,812	\$2,972
Rural Mountain High Traffic	\$68,653	20,903	\$3,284
Total Expenditures or Average \$/lane-mile.	\$307,034	96,060	\$3,196

*Source:* Derived from Virginia Department of Transportation, *Feasibility Model for Secondary System Assumption by Virginia Counties* (March 2007).

It would be preferable to use maintenance expenditures for the purposes of analyzing secondary system policy options. However, such data were generally not readily available, and are also difficult to compare across years as accounting procedures for their collection have changed and as VDOT has moved to “federalize” some of its maintenance projects.<sup>16</sup> For that reason, this analysis uses maintenance budgets rather than actual expenditures, unless otherwise noted.

However, expenditure data were available in a study completed in 2007 that examined expenditure data from FY 2001 to FY 2006. Using this expenditure data, it is possible to examine how maintenance expenditure varied by lane-mile of secondary roadway. Maintenance expenditures per lane-mile varied considerably across the Commonwealth during this period. Variations in expenditures depended in part on terrain and population density. Expenditures per lane-mile in northern Virginia (NoVa) counties (Fairfax, Loudoun and Prince William) averaged \$6,123 between 2001 and 2006 (in 2005 dollars), 92% more than the average of \$3,196. Indeed, NoVa county expenditures per lane mile are 213% of the average expenses elsewhere in the Commonwealth. Total expenditures in NoVa counties absorbed 19% of VDOT’s overall secondary maintenance expenditures, while comprising only 10% of the total lane-miles (see Table 5). Obviously, these expenditure data do not reflect the reductions in maintenance budgets since 2007.

<sup>16</sup> Jennifer DeBruhl, personal communication (March 10, 2011).

Reduced maintenance budgets for secondary roads have been accompanied by deteriorating road conditions. Between 2007 and 2009, the prevalence of deficient pavement on the secondary system increased from 25% to 31%.<sup>17</sup> In some districts the pavement deficiency rate approaches 50%. Compared to the interstate and primary systems, secondary roads are in the poorest condition. VDOT estimates total needs for secondary pavements at \$1.3 billion, and a “targeted” need at \$338 million for maintenance.<sup>18</sup>

If secondary roadway assets continue to deteriorate, the cost of returning them to a state of good repair increases exponentially. The basic science of pavement deterioration recognizes that the cost of restoring a pavement to a state of good repair rises rapidly as the pavement deteriorates. Poor pavements also impose a social cost on users in the form of discomfort, increased vehicle operating and repair costs, and compromised safety. In practical terms this means pavements that are unsafe and/or inconvenient for users, pavement markings that are not visible, missing or illegible signs, weight-limited or closed bridges, overgrown roadsides that limit sight distances, ditches that overflow and erode property, and delayed snow and ice treatment or clearing.

However, the impact of reduced secondary maintenance budgets on actual secondary expenditures, and how those expenditures flow through to secondary system condition and availability are not completely transparent. One observer noted that while there is budget and expenditure data, there is no comparison of district needs to district expenditures. As a result, even if a district’s budget is based on 50% deficient secondary pavements, the district administrator could put all that funding into bridges. Thus, it is possible in theory for a district to allocate its budget to projects that do not reduce the district’s needs as measured by the needs assessment.<sup>19</sup> Related issues were raised in the 2010 audits conducted by Cherry, Bekaert and Holland and the by Commonwealth’s Auditor of Public Accounts, although both audits focused on the development of budgets rather than actual expenditures, and neither broke out secondary roads as a particular analysis category.<sup>20</sup>

There are two additional considerations that weigh on secondary road policy options for the Commonwealth. First is the potential value and benefit of more local control. As mentioned in the introduction, transportation and land use are inextricably related. Careful coordination of transportation and land

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<sup>17</sup> Virginia Department of Transportation, *Biennial Report on the Condition of and Investment Needed to Maintain and Operate the Existing Surface Transportation Infrastructure for FY 2011 and FY 2012*, xiii.

<sup>18</sup> Sorrell, “Maintenance and operations program for FY 2011 budget,” 13.

<sup>19</sup> Review comment made on the condition of anonymity.

<sup>20</sup> Commonwealth of Virginia, Auditor of Public Accounts, *Review of Transportation’s asset management system and maintenance funding practices*, 11; Cherry, Bekaert & Holland, L.L.P., *Performance Audit of Significant Operations of the Virginia Department of Transportation*, 24-35.



use decisions is essential to achieve desirable development outcomes in any community that is developing to any significant extent. Such coordination is not impossible when authority over transportation and land use are split between a local government and a state agency. But successful transportation and land use coordination often require tough tradeoffs. Split authority and lack of a single point of accountability for achieving successful outcomes can, and in Virginia often has, led to poor outcomes.

A second important consideration is the employment associated with state responsibility for secondary roads. In some counties in the Commonwealth, jobs with VDOT are an important part of the economic base. Policy options that would shift such jobs out of the state system into county government or the private sector would need to include appropriate transitional provisions.

The secondary road challenge, then, is that secondary construction and maintenance budgets are declining, the system's condition is deteriorating, the cost to restore the system to a state of good repair is increasing, funds for new construction have evaporated, and VDOT is required to continue to accept new roads into the secondary system, which adds to the sum of its responsibility to maintain and operate the system. Moreover, the secondary system itself is a mixed bag of local roads, collectors and arterials, which makes it a difficult subject for policy analysis and consideration of policy options. There are large regional disparities in secondary budgets, and in some parts of the Commonwealth, the jobs associated with secondary road maintenance and operations are a significant part of the economic base. Authority over transportation and land use is split between local and state government in much of the Commonwealth, which may compromise the ability of some communities to achieve the development outcomes they aspire to.

The next section of this report turns to the origins of secondary road policy in the Commonwealth.

## **Secondary Road Policy Development in Virginia**

In 1932, Virginia took over responsibility for 35,000 miles of county roads, over 70% unpaved, following the passage of the Byrd Road Act. Counties faced drastic budget shortfalls during the Great Depression. Allowing the Commonwealth to take over road responsibilities would save them over \$3 million annually at the time. The state government likewise faced intense budget pressures, but state leaders believed that continued road infrastructure development would spur immediate job creation and increase future economic capabilities. They also believed that taking over secondary roads would free counties to spend more on education and other public services.

Because the rural and lightly populated counties possessed very little road expertise and experienced substantial reductions in tax revenue during the Great Depression, most accepted the road measure with relief. However sub-

urban counties, specifically Arlington and Fairfax (near Washington, D.C.), and Chesterfield and Henrico (near the state capital, Richmond), objected to the new policy out of fear that the state would neglect more urbanized streets in favor of rural roads. The act allowed county referenda on whether to retain control. Fifteen counties petitioned for referendum measures, and four chose to retain control. One of these counties, Nottoway, reversed its decision in 1933 due to a shortage of financial resources and ceded responsibility for its roads to the state, and Warwick later left the state system when it incorporated as part of the City of Newport News in 1958. Today, Arlington and Henrico are the only two counties with locally managed road systems. Both counties have consistently received state payments, determined by a per-lane-mile rate specified in state code and adjusted annually based on a cost index for labor, equipment and materials, to support their road operations.<sup>21</sup> Since 2003 the Appropriations Act established that the rate would be adjusted by the same growth rate as VDOT's maintenance budget. In 2011 the Virginia General Assembly amended the Code to mirror language in the Appropriations Act.<sup>22</sup>

The Byrd Road Act and subsequent legislation has allowed counties the option to resume control of their roads with a resolution passed by the Board of Supervisors, as well as to subsequently return those roads to the state secondary system by referendum.<sup>23</sup> Actual ownership of the road depends on which entity originally acquired the right of way. VDOT has “control, supervision, management and jurisdiction” unless counties opt to assume some or all responsibility.<sup>24</sup>

The Virginia code also allows counties to contribute to the secondary road program.<sup>25</sup> Counties can contribute funding to VDOT to perform additional construction and maintenance on the local road system. They can also implement certain fees and taxes to raise transportation revenue.<sup>26</sup> The work that they sponsor will not replace preexisting state services but rather increase the amount of road investment. Few counties have significantly added to VDOT's road operations until recently when high-growth urban counties have begun to do so.<sup>27</sup>

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<sup>21</sup> *Code of Virginia*, §33.1-23.5:1, §33.1-41.1.

<sup>22</sup> Virginia Acts of Assembly 2011, chapter 434, which amended *Code of Virginia*, §33.1-41.1.

<sup>23</sup> *Code of Virginia*, §33.1-84.1, §33.1-85.

<sup>24</sup> *Code of Virginia*, §33.1-69.

<sup>25</sup> *Code of Virginia*, §33.1-75.2.

<sup>26</sup> For a discussion, see County of Fairfax, Virginia, Department of Transportation, *Alternatives for improving roadway services in Fairfax County (DRAFT)*, 44-46.

<sup>27</sup> Virginia Department of Transportation, *The Feasibility of the Commonwealth to Match Funds Generated by Local Transportation Referendum*.

## Restructuring Initiatives

In recent decades, some counties have exhibited increasingly urban characteristics. One simple indicator of urbanization is population density, that is,

**Table 6: Population Density of Virginia Cities and Counties (People/Sq Mi, 2010)**

Jurisdiction	Type	Density Range
Alexandria	City	9,220
Arlington	County	8,026
Falls Church, Manassas Park, Norfolk, Charlottesville, Manassas, Fairfax, Richmond, Portsmouth, Lexington, Winchester, Harrisonburg	Cities	2,786-6,197
Fairfax	County	2,738
Hampton, Newport News, Colonial Heights, Fredericksburg, Roanoke, Hopewell, Virginia Beach, Salem, Radford, Williamsburg, Lynchburg, Petersburg, Bristol, Waynesboro	Cities	1,368-2,654
Henrico	County	1,289
Martinsville, Staunton	Cities	1,205-1,261
Prince William	County	1,190
Covington, Franklin, Danville, Buena Vista, Bedford, Emporia, Galax, Poquoson	Cities	783-1,051
Chesterfield	County	743
Chesapeake	City	652
York	County	620
Loudoun	County	601
Norton	City	526
Stafford	County	477
James City	County	469
Roanoke	County	368
Spotsylvania	County	305
Montgomery	County	243
Suffolk	City	211
Hanover	County	211
Frederick, Warren, Gloucester, Henry, Albemarle, Prince George, King George, Culpeper, Greene, Isle of Wight, Pulaski, Campbell, Powhatan, Matthews, Wise, Fauquier	Counties	100-200
Orange, Washington, Bedford, Rockingham, Fluvanna, New Kent, Tazewell, Lancaster, Middlesex, Shenandoah, Franklin, Clarke, Page, Goochland, Westmoreland, Augusta, Accomack, Smyth, Amherst	Counties	50-99
Average county density		68
Louisa, Prince Edward, Pittsylvania, Northumberland, Wythe, Carroll, Botetourt, Russell, Northampton, Lee, King William, Dinwiddie, Caroline, Mecklenburg, Nottoway	Counties	50-67
Giles, Richmond, Dickenson, Buchanan, Appomattox, Halifax, Essex, Scott, Greensville, Madison, Floyd, Charles City, Patrick, Rockbridge, Alleghany, Amelia, Grayson, Cumberland, Nelson, Southampton, Brunswick, Lunenburg, Buckingham, Rappahannock, Charlotte, Surry, Sussex, King and Queen, Bland, Craig, Bath, Highland	Counties	6-49
Source: U.S. Census Bureau. "State and County QuickFacts." Virginia data sets, 2010. Retrieved May 24, 2011, from <a href="http://quickfacts.census.gov/qfd/index.html">http://quickfacts.census.gov/qfd/index.html</a>		

the population of a county divided by its land area. The 10 counties with the highest densities approach or exceed the density of Virginia's major cities. The City of Alexandria has the highest density in the Commonwealth at 9,220 persons per square mile (see Table 6). Arlington County the next densest jurisdiction among all cities and counties, at 8,026, followed by the cities of Falls Church, Manassas Park, Norfolk and Charlottesville. Fairfax County, at 2,738 persons per square mile, falls between the densities of Harrisonburg (2,786) and Hampton (2,654).

In response to this urbanization, the Commonwealth has undertaken research examining the feasibility and desirability of promoting local road programs outside of VDOT control. In 1998, the Virginia Transportation Research Council's report *Beyond the Byrd Road Act* examined VDOT's relationship with urban counties. The study identified 15 high-growth, urbanizing counties and included extensive interviews with many VDOT officials who worked on roads within the counties. The stated reason for the study was that "the distinction between counties and cities has blurred in many instances, especially in the urbanized 'golden crescent' that extends from Northern Virginia to Hampton Roads."<sup>28</sup> This contrasts with the formerly rural demographics of these counties, and the report sought to understand how new conditions created and changed road service needs.

The report found that one result of demographic changes was that, "in particular, subdivision street issues consume considerable VDOT staff time."<sup>29</sup> Among numerous findings listed, the study found that technical road expertise varied among counties and that more expertise increased the level of interaction with VDOT; that county land use planning functions and VDOT transportation planning functions often conflicted, with VDOT taking a regional view and counties a local view; and that cost-issues would dominate any devolution discussions, which at the time required counties to absorb both maintenance and construction functions, provided no facility or equipment transfers, and had attracted no county interest. One commonly reported concern was a lack of data on maintenance costs and detailed descriptions of VDOT operations. Counties also expressed more interest in pre-construction, construction, and planning than in maintenance and indicated that the legal restraints demanding an "all-or-nothing" devolution deal prevented them from becoming involved more gradually. Another problem in Virginia code at the time was that under road transfer agreements counties could receive equipment from VDOT as part of resuming road responsibilities but not facilities, land, or staff. The high costs of acquiring these resources as well as the challenge of developing transportation construction expertise from scratch left some county respondents very doubtful about the

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<sup>28</sup> O'Leary, *Beyond the Byrd Road Act*, 1.

<sup>29</sup> Ibid.

prospects for a successful transition.<sup>30</sup> Many of these barriers to devolution have been addressed in subsequent legislation.

### ***Secondary System Devolution Policy Since 2001***

In the last decade, the Commonwealth has begun to encourage more county involvement by modifying the Virginia code and clarifying the system by which counties may assume control of roads. A 2005 VDOT report explains why restructuring the secondary road system in a way that returns control over secondary construction to counties might be a desirable policy option:

As counties develop and [citizens'] expectations increase, road construction needs exceed available funds and resources. To meet the transportation demands in their areas, many counties provide additional county funds to supplement secondary allocations provided through VDOT. To have more control over construction project delivery, many counties administer some of their improvement projects. Defining the process in which a county can assume responsibility for its entire secondary construction program allows counties to better evaluate this option.<sup>31</sup>

With respect to secondary system maintenance, between 2001 and 2009, the General Assembly enacted a series of measures intended to facilitate county resumption of responsibility for secondary roads. These measures have established a system whereby a county can receive a budget similar to what VDOT had spent on the roads within the jurisdiction to perform equivalent maintenance functions itself. In addition to offering the possibility of higher county-funded levels of road investment, the state seeks to give counties assuming road responsibility increased flexibility in specifying road design standards (although not less than AASHTO standards), land use regulation, project selection, and permitting allowances. While several counties have considered assuming road responsibility under this system, no county has yet completed negotiations on the resumption of the secondary system responsibility.

In 2007, the General Assembly allowed six higher density counties to establish Urban Transportation Service Districts (UTSDs) to have the same maintenance responsibilities as cities and towns, generally the maintenance and operation of the roadway network within the district, and to impose impact fees. The counties were those with populations greater than 90,000 in the 2000 U.S. Census that did not already maintain their own roads (Chester-

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<sup>30</sup> O'Leary, *Beyond the Byrd Road Act*.

<sup>31</sup> Virginia Department of Transportation, *Report for Counties Assuming Responsibility for their Secondary Construction Program*, 2.

field, Fairfax, Loudoun, Prince William, Spotsylvania and Stafford). Authority to establish new impact fees expired on December 31, 2008.<sup>32</sup>

In 2007, the Local Assistance Division at VDOT released a “Devolution Guidebook” to help counties understand these changes and the new types of devolution arrangements they permitted. Broadly speaking, devolution transitioned to a selective system whereby counties could choose what level of responsibility they wished to assume, and then receive payments equivalent to what VDOT currently spent for these responsibilities. The Guidebook describes the requirements of running county programs in construction, maintenance, and operation. The Guidebook maintains that, as required by code, these payments would be equivalent to the amount VDOT currently spent on road services in the county, plus an extra 5% for administrative costs. The negotiated rate would include annual adjustments according to the same formula afforded to cities and the counties of Arlington and Henrico.<sup>33</sup>

In particular, VDOT allows counties to assume four different levels of responsibility for their secondary roads:<sup>34</sup>

- Maintenance only;
- Construction only;
- Maintenance and construction; and
- Maintenance, construction, and operations (full devolution and operational responsibility, similar to the arrangements currently in place for Henrico and Arlington Counties).

In 2007, the Local Assistance Division also worked with the consulting firm TransTech to develop the Feasibility Model for Secondary System Assumption (“cost model”). This would help illustrate the payment rates to counties for different levels of responsibility and the start-up costs of different types of road programs. The model took historical cost data from VDOT maintenance operations within the counties to estimate per-lane-mile payment rates. Further, it considered workloads of different levels of responsibility and looked at the costs of providing adequate equipment and facilities, which would help counties estimate the start-up costs of a program.

Both James City and Stafford counties participated in the devolution study. In addition, the counties of Fairfax, Caroline and Spotsylvania (near Fredericksburg), and Chesterfield (near Richmond) have inquired about expanding their roles in secondary road activities. No counties have yet proceeded with devolution.

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<sup>32</sup> *Code of Virginia*, §§ 15.2-2328, 15.2-2329, and 15.2-2403.

<sup>33</sup> Virginia Department of Transportation, *Guide to County Assumption of Secondary Roads (Devolution Guidebook)*, 38.

<sup>34</sup> *Ibid.*, 4.

### James City and Stafford County Studies

As part of the devolution study, VDOT carried out applied case studies in partnership with Stafford and James City counties.

James City County recognized declining road funding from the state in the coming years and anticipated the need to augment road services at a local level. The county viewed participation in the study as a way to approach future pressures with the benefit of early preparation. However James City officials did not view the rates provided by the model as sufficient to cover the costs of a road program. The model projected start-up costs of \$5 million and annual costs at \$4.8 million in 2009 and growing thereafter as construction costs and lane-miles increased.

In December 2007 the James City County Board of Supervisors passed an initial resolution of intent to assume road control and worked to develop a transfer agreement with VDOT. At the same time VDOT also worked to estimate the costs of bringing road maintenance up to a “state of good repair” before transferring the roads. These costs were estimated to be around \$4 million. However James City County suspended negotiations in 2009 when concerns emerged about the declining state allocations to road transportation.<sup>35</sup>

Stafford County (near Fredericksburg) also participated in the preliminary application of the secondary roads cost model. Stafford initiated exploration to establish a UTSD in 2008 (after provisions were adopted in 2007), however due to concerns regarding the level of payments from VDOT it did not pursue finalizing a UTSD agreement.

### Fairfax County

Fairfax County has made multiple serious inquiries into resuming secondary road control and has conducted in-depth studies into the financial, legal, and logistical implications of such a move, the most recent of which is detailed in a draft report released on November 30, 2010. In 1975, Fairfax contracted a private consulting firm to perform a feasibility study of road takeover. The study recommended assuming construction, maintenance, and operations functions of primary and secondary road control if the county could reach a satisfactory funding agreement with the state. It provided a cost analysis of start-up costs for a full service transportation department and projected the annual operating costs to maintain the local road system at acceptable service levels. The study also provided a detailed organizational structure for operating a local road division and considered how state and local laws

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<sup>35</sup> Sandy Wanner, James City County, Virginia, personal communication (2010).

would affect road functions. Fairfax concluded at the time not to pursue transfer.<sup>36</sup>

The county continued to urbanize, growing in population density, development, and economic output, and in 1990 performed another major study to reevaluate the possibility of road assumption. Most significantly, Fairfax had become one of the leading local partners in transportation projects, spending over \$50 million per year on its road program. This occurred largely in response to the county's desire to achieve road improvements faster and more extensive than those being provided by VDOT.

The 1990 report, conducted by KPMG Peat Marwick, cited major factors supporting local control. These included increasing the amount of county-based revenue being used to finance local road projects, potential improvements in land use and transportation coordination under local operation, increasing road program responsiveness to county needs, and increasing flexibility in allocating road resources. The report stated that the overriding problem of the current system was the inability of VDOT to keep pace with the county's growing transportation needs:

Despite the past and continuing efforts by VDOT to better serve the road transportation needs of Northern Virginia, concerns persist about the ability of VDOT to keep up with the rapid growth of Fairfax County's road program needs and the responsiveness, accessibility, and accountability of VDOT program managers to the needs of County officials and citizens.<sup>37</sup>

The 1990 study also updated the start-up and operational costs associated with several different levels of locally run road functions. It estimated that a full-coverage secondary road maintenance division would cost around \$35 million per year and a secondary road construction program would cost between \$50 million and \$80 million per year. The recommended county road takeover program would cost \$123 million, of which an estimated \$52 million would come from the state. On top of the local revenue already invested in the road program, Fairfax would need to contribute an additional \$20 million revenue. The study considered this a feasible amount for the county to raise and suggested a 3.6 cent increase in the property tax per \$100 of assessed valuation. In the end, the county declined to adopt the program after it failed to reach a satisfactory funding agreement with VDOT and concerns were raised about hikes in the property tax.

Since 1990 Fairfax has retained interest in assuming more road responsibilities. In the past year it began a preliminary reexamination of the issue, and released a draft report on November 30, 2010. Increasing local investment in

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<sup>36</sup> County of Fairfax, Virginia, Department of Transportation, *Alternatives for improving roadway services in Fairfax County (DRAFT)*, 65.

<sup>37</sup> KPMG Peat Marwick, Roy Jorgensen Associates, and Rust, Rust and Silver, *County Road Takeover Feasibility Study, prepared for the County of Fairfax, Virginia, Office of Transportation*, II.7.



roads, totaling hundreds of millions of dollars in the past decade, have sharpened Fairfax's capability in road management and heightened its interest in looking to tailor a road program suitable for its urban demographics.

The report offers a thorough rationale for why the County might want to consider greater involvement:

Overall funding level. The ability of the state to build, maintain, and operate its roadway system is becoming increasingly difficult. Funding for maintenance activities has assumed an increasing proportion of the VDOT budget, and these activities themselves are being reduced. At the same time revenues for new construction have been severely curtailed. Moreover, recent efforts to increase statewide transportation funding in the General Assembly have not provided sufficient revenues to meet all of the County's needs. This situation shows no signs of changing in the near future and the County is increasingly finding itself in the position of assuming responsibilities that VDOT cannot adequately fund. Serious considerations of greater County involvement may help the County stay ahead of a deteriorating situation.

Enhanced influence in transportation decision-making. As VDOT revenues have been increasingly devoted to maintenance and operations, the role of the County's contributions to highway improvements has become increasingly significant. Since the County is now funding a large percentage of these improvements, it is not unreasonable for the County to assume an expanded role in maintaining and operating the system.

Improved responsiveness and accountability. Despite the fact that VDOT maintains a large presence in Northern Virginia, the fact that most decisions related to the roadway network must be made by VDOT creates an additional layer of government that adds time and complexity to even the simplest of issues. In addition, it is occasionally difficult to identify individuals within VDOT who are responsible for making various decisions. Decision-makers at the County level could be more directly involved and more responsive to citizen concerns. Thus, the County could implement a more streamlined decision structure that would improve responsiveness and accountability.

Increased flexibility in establishing priorities and standards. Since VDOT is responsible for roads throughout the state, its rules, standards, procedures, and policies are not always appropriate for urban and suburban areas such as Fairfax County. For example, the County may wish to provide a street network in the Tysons Corner area that is more urban in character than currently allowed under VDOT standards. In addition, with increased responsibilities, the County would be able to allocate resources among programs and projects according to County plans and priorities. This is in contrast to current practice where frequent coordination and discussion is needed to make sure VDOT priorities are in agreement with County priorities.<sup>38</sup>

The 2010 draft report identifies five major options, with sub-options, for improving roadway services in the county:

1. enhancing maintenance by providing VDOT with additional funding for select maintenance activities (i.e., pavement, turf, sidewalks, and/or signals);

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<sup>38</sup> County of Fairfax, Virginia, Department of Transportation, *Alternatives for improving roadway services in Fairfax County (DRAFT)*, 23.

2. assuming responsibility for select maintenance activities (same as above);
3. assuming responsibility for various functions of the secondary system under VDOT devolution guidelines;
4. assuming responsibility for primary and secondary system within certain geographic areas (using provisions for establishing an Urban Transportation Service District, potentially in Tysons Corner); and
5. assuming responsibility for the primary and secondary system for the entire county.

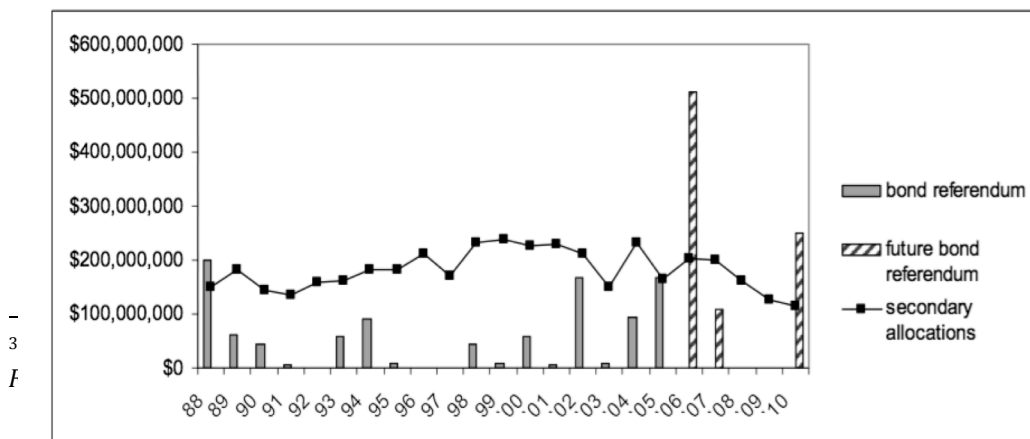
The report also examines prospects for raising the revenue necessary to pay for the options identified. A property tax of 4 cents per \$100 assessment would raise approximately \$70 million per year. A 0.5% sales tax would raise an equivalent amount, but would require approval of the General Assembly since Fairfax County's current sales tax is already at the statutory maximum. The report also examines the potential for conversion of the county to a city, but does not find the advantages of doing so to outweigh the costs.

### **Bond Study**

The declines in both the secondary construction and maintenance programs have stimulated interest in providing ways for interested counties to increase their level of service. Already a few counties have invested heavily in construction. In 2005, five counties raised over \$500 million using bonding, the majority of which came from Fairfax and Prince William counties.

In 2006, the General Assembly directed VDOT to examine the feasibility of the Commonwealth matching such county efforts on a "one for two" basis, that is, one state dollar of match for each two dollars of county bonding. Figure 4, taken from that study, shows county bond referendum proceeds compared with the secondary construction allocation, as of December 2006. The study concluded that "the proposed bond matching program would exhaust all existing formula allocations and result in Virginia's inability to match – and thus forfeiture of – significant federal revenues."<sup>39</sup>

**Figure 4: County Bond Referenda Compared to Secondary Construction Allocations (2006)**



Source: Virginia Department of Transportation, 2006. *The Feasibility of the Commonwealth to Match Funds Generated by Local Transportation Referendum*, p. 4.

## **System Reclassification**

One of the key challenges of Virginia's secondary system is that it is an administrative system that contains a wide range of functional classes of roadways. In recognition of this diversity, the General Assembly in 2007, ordered VDOT to develop a plan to reclassify the entire state highway system to a set of functional classes by January 1, 2009. The resulting plan, was submitted to the General Assembly in late 2008. However, the Commonwealth Transportation Board (CTB) declined to endorse the plan at its December 18, 2008, meeting, citing two administrative difficulties encountered in developing the plan:

1. "FHWA's functional classification designations are made to road segments, not roads as a whole. By contrast, Virginia's primary, secondary, and urban systems are based on roads, not segments. This difference between these systems of classification tends to lead to discontinuities in the primary system for any reassignment plan that uses functional classification as its basis.
2. "The determination of how a road segment should be functionally classified is how well it meets a set of complex FHWA criteria. The FHWA criteria for functional classification have little or no relationship to administrative classification because the administrative classification is based on the 1932 Byrd Road Act and the Federal functional classification criteria did not exist at that time. Consequently, it is very difficult to develop reassignments in a consistent, easily documented and understood methodology to comply with the mandate of Chapter 896."<sup>40</sup>

The CTB at its December 18, 2008, meeting also directed VDOT "to determine if another classification method can be implemented with the least amount of disruption to the functionality, financing, and integrity of the overall road network" and to present its results at the April 2009 CTB meeting.<sup>41</sup>

Subsequently the Virginia Transportation Research Council developed a proposal to reclassify Virginia's highway system. The proposed "core network" would include only 11,440 miles of the current secondary system, and exclude 36,840 miles of current secondary roads. The core network would have an overall length of 24,420 miles and would comprise the major arterials of the state (see Table 7).<sup>42</sup>

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<sup>40</sup> Grimes and Howe, *A plan for reassigning roads to Virginia's administrative classification system using the federal functional classification system*, 3-4.

<sup>41</sup> Virginia Commonwealth Transportation Board, "Resolution of the Commonwealth Transportation Board, Action on Functional Classification Study Mandated by Chapter 896 of the Acts of Assembly of 2007," 2.

<sup>42</sup> Tischer, "Corridors of Statewide Significance."

**Table 7: Potential Core Network of Roads**

	Core Network		Administrative Classification (current)		Change in Mileage
	Miles	%	Miles	%	
Interstate	1,120	5%	1,120	2%	-
Interstate ramps	500	2%	500	1%	-
Primary	7,920	32%	7,920	11%	-
Secondary	11,440	47%	48,280	69%	(36,840)
Urban	3,110	13%	11,350	16%	(8,240)
Frontage	330	1%	330	0%	-
<b>Total</b>	<b>24,420</b>	<b>100%</b>	<b>69,580</b>	<b>100%</b>	<b>(45,160)</b>
<i>Source:</i> Gary Allen, "Looking Ahead to 2035: A Potential Core Network of Roads" presented at the Commonwealth Transportation Board Workshop (September 16, 2009). <a href="http://www.ctb.virginia.gov/resources/2009/cm6A_vtrans2035_Core_Network091609.pdf">http://www.ctb.virginia.gov/resources/2009/cm6A_vtrans2035_Core_Network091609.pdf</a> .					

Such a reclassification could have several impacts. First, the core network would comprise all the Commonwealth's significant roads and streets, and they would be classified into a single administrative system that could be the focus of maintenance and operations. Second, the reduced secondary system would consist of a more functionally uniform set of roadways that would allow policy makers to more easily consider options such as continued maintenance and operations by VDOT, and various options for outsourcing or devolution of responsibility for various maintenance and operations functions, such as snow and ice removal. Third, districts with the most congestion would receive the highest primary construction allocation.

## Other Relevant Policy Developments

### ***Transportation and Land Use Coordination***

The interaction between transportation facilities and services and the land uses that they serve is an important determinant of the quality of life, economic vitality and the environmental integrity of a community. Land use shapes the demand for transportation facilities and services, just as transportation facilities and services influence the accessibility and usage of land.

Traditionally, in Virginia and elsewhere, land use regulation is a prerogative of local government – a prerogative that has been vigorously protected over many decades. Coordination between land use and transportation in the Virginia system is divided between counties and VDOT, except in Henrico and Arlington counties and in cities towns of 3500 population or more. It is widely acknowledged that this coordination between VDOT and counties is a ma-

jor challenge in the more urbanized counties, despite many good faith efforts on both sides.

The difficulty of dividing authority over land use and transportation is that successful coordination is extremely challenging under even the most favorable conditions. Landowners often want to develop their land to its fullest economic use, which in turn very often has implications for traffic. Other landowners wish to protect their homes and businesses from any adverse impacts arising from changes in land use or transportation. Having a clear set of rules, with timely and efficient review and provision for exceptions is highly complex, all the more so when a state agency and a locality must share authority.

The Commonwealth has made significant efforts to strengthen coordination between transportation and land use decision-making. In the last 5 years, the General Assembly has authorized and VDOT has promulgated new regulations governing standards for accepting new secondary streets into the state secondary system, managing access to state roads (i.e., curb cuts and driveways), and requiring VDOT review of traffic impacts for rezoning or development plans that would add 5,000 or more vehicles per day to a state highway.<sup>43</sup>

While the new regulations aim to strengthen coordination between transportation and land use, they do so by inserting additional VDOT review and in some cases approval into the decisions of developers and local governments. In some cases, developers and local governments have not welcomed this additional review, which some consider to be interference and delay that are unwarranted, especially in more rural counties. VDOT continues to work with affected constituencies to review and revise the regulations. The relationship between land use and transportation planning, particularly the differing needs for coordination in rural vs. urban localities, is of considerable importance.

Another way to enable improved land use and transportation coordination is by lodging responsibility for transportation at the local level. For example, officials from Arlington County, which controls most of its roads and streets, contend that County control over both land use and transportation have paid extraordinary dividends to the County's ability to achieve the outcomes they desire. Unified control allows the County to work directly with a developer or landowner to integrate decision-making about site plans, sidewalks, landscaping, street furniture, traffic control, curb cuts and driveways, County fiber optic network, water supply, sanitary and storm sewer, street lighting parking, and pedestrian and handicapped access. Another benefit of unified

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<sup>43</sup> Virginia Administrative Code, "Traffic Impact Analysis Regulations."; "Access Management Regulations: Minor Arterials, Collectors, and Local Streets."; "Access Management Regulations: Principal Arterials."; "Secondary Street Acceptance Requirements."

control is the ability to expedite project development. Arlington County's Transportation Division Director states that the County is able to move projects from scoping to completion in two years, while working with VDOT would require as much as five years for the same project. He cited that speed as one of the major reasons the County recently took over a state road, Columbia Pike, from VDOT. The County plans extensive redevelopment in the corridor, including substantial integration with transit, pedestrian and bicycle facilities, and did not feel the project could be successful without unified authority over land use and transportation.<sup>44</sup>

From a developer's perspective unified authority may also be advantageous. Even fairly simple requests for property access (turn lanes, driveway entrances, for example), can require multiple approvals as issues bounce between a county and VDOT. Traffic impact studies, for example, are prepared by a developer and reviewed by county engineers for submission for review by VDOT engineers, who then have 100 days to review. For a developer, timely approval of site plans and designs is often as important as the cost of required design features, and sometimes perhaps more important.

### ***Local Option Transportation Taxes***

The U.S. has traditionally relied heavily on user fees, primarily the gas tax, to finance highway improvements. In recent years, however, that reliance has begun to erode. Governments have been reluctant to raise gas taxes, and the revenue generated by existing gas taxes has been eroded by inflation and by increasing fuel efficiency in motor vehicles.<sup>45</sup> As governments have shifted from user fees, they have increasingly turned to more broad-based taxes, such as sales, income and property taxes.<sup>46</sup>

Some such taxes are currently within county authority in Virginia. A 2001 study by Goldman, Corrett and Wachs concluded that "in general, the [Virginia] legislature has been reluctant to delegate taxation authority to local governments."<sup>47</sup> As noted earlier, Fairfax County recently reviewed the options available to counties for revenue. Their findings are summarized in Table 8.

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<sup>44</sup> Dennis Leach, personal communication (May 2011).

<sup>45</sup> National Surface Transportation Policy and Revenue Study Commission (U.S.), *Transportation for tomorrow*; U.S., National Surface Transportation Infrastructure Financing Commission, *Paying our way*; National Research Council (U.S.), Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance, *The fuel tax and alternatives for transportation funding*.

<sup>46</sup> Goldman and Wachs, "A quiet revolution in transportation finance: the rise of local option transportation taxes."; Wachs, *Financing Transportation Infrastructure in California*.

<sup>47</sup> Goldman, Corrett, and Wachs, *Local Option Transportation Taxes: Part Two*.

**Table 8: Fairfax County Options for Raising Revenue**

<b>Tax</b>	<b>Approximate Revenue for Fairfax County</b>
<b>Requiring County Board of Supervisors Approval</b>	
Real estate assessment	\$75 million (4 cent assessment)
Personal property assessment	\$5 million (5 cent assessment)
Commercial and industrial real estate tax	\$6 million (1.5 cent assessment)
Vehicle registration fee	\$27 million (Fairfax rates are currently at the maximum allowed by Virginia law)
<b>Requiring Voter Approval</b>	
General obligation bonds	Variable
Meals tax	\$80 million (4% tax)
Income tax for transportation (limited to 5 years duration)	\$105 million (0.25% tax) \$421 million (1% tax)
<b>Requiring General Assembly Approval</b>	
Grantor's tax (real estate transaction)	\$54 million (at 40 cents per \$100 of purchase price)
Initial vehicle registration fee	\$30 million (1% of purchase price)
Sale and use tax on auto repairs	\$14 million (5% on auto repair transactions)
Transient occupancy tax	\$13 million (2%)
Safety inspection fee	\$9 million (\$10 at vehicle inspection)
Regional registration fee	\$9 million (\$10 per year)
Motor vehicle rental tax	\$1.3 million (2%)
Additional motor fuels tax	\$5.3 million (0.5% on retail price)
Additional sales and use tax	\$73 million (0.5% additional tax)
<i>Source: County of Fairfax, Virginia, Department of Transportation, Alternatives for improving roadway services in Fairfax County (DRAFT) (Fairfax, VA, November 30, 2010), 58-60,</i> <a href="http://www.fairfaxcounty.gov/fcdot/pdf/alternatives_improving_roadway_services.pdf">http://www.fairfaxcounty.gov/fcdot/pdf/alternatives_improving_roadway_services.pdf</a> .	

Each of these taxes raises particular issues about appropriate levels of taxation, equity, efficiency, cost of collection, evasion, and all the other questions that taxation typically raises. It is beyond the scope of the present study to recommend any particular tax or package of taxes. However, enhancing the capacity of counties to raise transportation revenues with such taxes could raise the willingness of counties to expand their responsibility for secondary road construction and maintenance.

It is not entirely clear how counties would respond to the option to raise local taxes since taxation is typically a volatile issue. However, such an option would afford counties that are dissatisfied with the current level of secondary road construction and maintenance support from VDOT an option to en-

hance their local systems. And indeed, as noted earlier, some counties have already invested substantial amounts of their own funds for construction.

### ***Urban Construction Initiative (First Cities Initiative)***

In 2003, the General Assembly modified the *Code of Virginia* § 33.1-23.3 to allow cities and towns that were part of the Commonwealth's Urban System to assume management of the construction of streets and highways that were paid for with federal and state funds. Formerly, VDOT had had lead responsibility and worked in cooperation with cities and towns since the 1970s, when it established its Urban Division.<sup>48</sup> In its first year (beginning July 1, 2004), the cities of Hampton, Richmond and Virginia Beach joined the program, followed by Charlottesville (in FY 2006), Harrisonburg and Bridgewater (FY 2007), Lynchburg (FY 2008), Blacksburg and Dumfries (FY 2009), Colonia Heights (FY 2010), and Newport News (FY 2011).<sup>49</sup>

Virginia cities differ from counties in the legal authorities and responsibilities for transportation they hold. One key authority held by cities but not counties in Virginia is the ability to incur debt without referendum.<sup>50</sup> Also, cities historically have departments of public works that are responsible for the cities' general public works. Many smaller counties have very limited institutional capacity for public works management and administration. Of course, such capacity could be developed in the future, as it has been in many counties around the U.S. But the capacity building required should not be overlooked.

### ***Maintenance Outsourcing***

The contracting out of highway operations and maintenance services has received increasing attention in recent years. Benefits associated with outsourcing are cost savings, quality and efficiency, the ability to deal with peak demands, faster project delivery, and improved risk management.<sup>51</sup>

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<sup>48</sup> Whitley, "Virginia's First Cities Initiative."

<sup>49</sup> Virginia Department of Transportation, "Local Assistance Division.," Steele and DeBruhl, "Moving in a New Direction.," Virginia Department of Transportation, *Urban Construction Initiative FY 2005 Annual Report*; Virginia Department of Transportation, *Urban Construction Initiative FY 2006 Annual Report*; Virginia Department of Transportation, *Urban Construction Initiative FY 2010 Annual Accomplishments*.

<sup>50</sup> Virginia Department of Transportation, *The Feasibility of the Commonwealth to Match Funds Generated by Local Transportation Referendum*, 3.

<sup>51</sup> Winter, *Outsourcing and VDOT*; Hyman, *Performance-based contracting for maintenance*; Hoffman, Bhajandas, and Mallela, *Issues and practices in performance-based maintenance and operations contracting*; Cambridge Systematics, Inc. and Meyer, *U. S. Domestic Scan Program: Best Practices in Transportation Asset Management*; Segal and Montague, "Competitive Contracting for Highway Maintenance: Lessons Learned from National Experience - Policy Note - Washington Policy Center.," Segal, Moore, and McCarthy, *Contracting for road and highway maintenance*; Pakkala, *Innovative project delivery methods for infrastructure*; Pakkala, de Jong, and Äijo, *International overview of innovative contracting practices for roads*.



There are two main categories of maintenance and operations outsourcing: method-based outsourcing and performance-based outsourcing. Method-based outsourcing has been used for many decades in highway contracting and more generally. A method-based contract specifies the “method” and approach that a contractor is to use to accomplish a task, and then awards a contract, often on a low-bid basis, for the best proposal to carry out that method.

Performance-based maintenance contracting (PBMC) focuses on performance rather than method. The contract specifies the desired outcome or performance standard, but leaves the method for achieving the outcome or standard to the contractor. One key to successful PBMC is establishing appropriate outcomes and standards, both in terms of the level of service that is appropriate, and the method of measurement that is appropriate.<sup>52</sup>

Virginia has been a leader in the outsourcing of Interstate maintenance. The 1995 Public Private Transportation Act opened the door to such outsourcing, and subsequent legislation has required that 100% of Virginia’s Interstate system maintenance and operation be outsourced.<sup>53</sup> Virginia’s Interstate maintenance contracts have encountered some difficulties, however. In 2010, VDOT terminated 2 contracts on I-81 for failing to meet snow-clearing provisions.<sup>54</sup> For example, on December 26, 2010, VDOT had to use its trucks and plows to clear I-264 because the contractor was not able to clear the facility in a timely manner, and the contractor will be assessed a penalty for non-performance. On the other hand, the severity of the event prompted the Governor to declare an emergency and mobilize the Virginia National Guard, which provides support to state and local agencies during emergencies, including Virginia State Police, Virginia Emergency Management Agency and VDOT.<sup>55</sup>

Particular challenges associated with PBMC are selection criteria, stipulating performance thresholds, and risk sharing. The method of selection of PBMC bidders is important. Industry experts contend that low-bid methods often lead to problems. Under a “lowest qualified bidder” system, bidders are re-

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<sup>52</sup> An early marketing slogan for PBMC in Virginia was “just-in-time maintenance,” a concept whereby road maintenance subcontractors would be kept on call to perform spot maintenance, such as pot-hole filling, on short notice without having to execute a contract or maintain VDOT staff. Lande and Dennis, “Performance Led Comprehensive Agreement for Virginia Interstate Highway Asset Management Services, USA.” Industry experts indicate that this practice is now standard across the industry. Andrea Warfield, personal communication (January 11, 2011).

<sup>53</sup> Virginia Department of Transportation, *Biennial Report on the Condition and Performance of Surface Infrastructure in the Commonwealth of Virginia*; Virginia Department of Transportation, *Biennial Report on the Condition of and Investment Needed to Maintain and Operate the Existing Surface Transportation Infrastructure for FY 2011 and FY 2012*; Hyman, *Performance-based contracting for maintenance*.

<sup>54</sup> Sturgeon, “VDOT fires I-81 contractor over ‘failure’ to clear snow, ice.”

<sup>55</sup> Martz, “VDOT clears roads, warns of ice | Richmond Times-Dispatch.”

quired to meet a minimum threshold to qualify, and then the lowest bid from qualified bidders is selected. Another alternative is a “quality bid selection” process, whereby criteria for selection are weighted by points, including bid price. Each proposal is scored on each dimension, and the bid with the highest point total is the winner. Quality bid selection allows the selection process to recognize tradeoffs between the different dimensions of a proposal.<sup>56</sup>

Another challenge of PBMC is the difficulty of stipulating threshold levels for extreme events. More generally, the issue of risk allocation between the public agency and the private contractor is at the heart of PBMC and public private partnerships (PPPs), and there is no shortage of critics of how this allocation is carried out.<sup>57</sup>

Such “make or buy” decisions are not unique to public agencies or maintenance contracting, however, nor are they insoluble. Typically a decision between producing a good or service internally rather and purchasing it on a market must examine the transaction costs involved, the extent to which an asset or service is unique to a particular organization, and the extent to which the good or service can be adequately captured in a contract. There is a large literature on the subject.<sup>58</sup>

Another concern is how a public agency can maintain an emergency response capacity while utilizing PBMC. If an agency dispenses with most of its field personnel and equipment and relies on contractors, what happens in the event of emergencies such as severe snow and ice storms, hurricanes, and other extreme events? This is an important issue, but not an intractable one. Private utility companies such as electric power and telecommunications companies maintain substantial emergency response capacity both using their own employees, equipment and facilities, and maintaining mutual aid agreements and on-call contracts for assistance. Also, the level of emergency response required for local roads and streets, both urban and rural, is probably less than that required for arterials and collectors. If a contractor is required to maintain on-call services for events that happen only once per century, the cost of the contract will reflect that compared to a threshold of once per 50 years, for example.

Despite these difficulties, PBMC is used widely around the U.S., North America and the world. A full review of PBMC is beyond the scope of this report, but interviews with experts in the field as well as review of literature suggest that it may have potential for rural and secondary roads in the Common-

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<sup>56</sup> de la Garza and Arcella, “A literature review on alternative highway maintenance procurement strategies.” Andrea Warfield, personal communication (January 11, 2011).

<sup>57</sup> Shaoul, Stafford, and Stapleton, “Highway robbery? A financial analysis of design, build, finance and operate (BDFO) in UK roads.”; Dannin and Kokorinos, “Infrastructure privatization in the United States.”

<sup>58</sup> See Rubin, *Managing business transactions: controlling the cost of coordinating, communicating, and decision making*.

wealth, in addition to its current use for Interstates. Examples of jurisdictions that are utilizing PBMCs for the delivery of some or all of their road maintenance include the following.

- Florida DOT (FDOT) uses what it calls “Asset Maintenance” (AM) contracts for large parts of its entire state road system, including lower order roadways like collectors. These are not entirely comparable to most Virginia secondary roads. Also, Florida does not experience freeze-thaw cycles, and does not have snow and ice issues. However, its experience may be useful for Virginia. FDOT uses its AM contracts for a broad range of services, including pavement markings, signs, drainage and slopes, and vegetation control. FDOT excludes pavement management, which is handled by its construction division using traditional method-based outsourcing similar to the system used by VDOT for its pavement contracts. FDOT also excludes damage caused by governor-declared emergencies such as hurricanes because of difficulties claiming reimbursements for repairs from the federal government.<sup>59</sup>
- Roadway Management, Inc., has pavement management contracts with a number of city and county governments. Some of these include initial “front loading” of repairs to bring pavements up to a good state of repair and then maintain them, others bring assets up to good repair over 10 years. Rule-of-thumb costs for pavement and markings maintenance is \$0.50 to \$1 per square yard of pavement per year, which equates to \$2,933 to \$5,866 per lane-mile for a road with 10-foot lanes. VDOT currently spends approximately \$0.28 per square yard for pavement repairs and lane markings, or \$1,506 per lane-mile.
- PBMCs for roads in Finland cover all roads in a particular territory, including gravel. A uniform contracting procedure is used for all roads. Lower order roads simply have different performance standards.<sup>60</sup>

A variant of contracting out is so-called “managed competition,” whereby public employees compete head-to-head to win contracts for government services. The City of Charlotte, North Carolina, has been a national leader in the use of managed competition. The idea is that the procuring agency can achieve cost and operational efficiency often found in the private sector while at the same time preserving public sector jobs.<sup>61</sup>

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<sup>59</sup> Mike Sprayberry, Florida Department of Transportation, personal communication (December 29, 2010).

<sup>60</sup> Pekka Pakkala, Helsinki University of Technology, personal communication; Pakkala, *Innovative project delivery methods for infrastructure*; Pakkala, de Jong, and Äijo, *International overview of innovative contracting practices for roads*.

<sup>61</sup> Elmore, “City of Charlotte’s Privatization and Competition Advisory Committee.”; Martin, “Public-Private Competition: A Public Employee Alternative to Privatization.”; Jensen, “MANAGED COMPETITION: A TOOL FOR ACHIEVING EXCELLENCE IN GOVERNMENT.”; City of Charlotte (North Carolina), Business Support Services, “Managed Competition.”

At the federal level, a related idea of contracting out “commercial activities” has also received considerable attention. A key test whether an activity is appropriate for contracting out is if it is “inherently governmental,” which was defined by statute in 1998 as an activity “so intimately related to the public interest as to mandate performance by Federal Government employees.”<sup>62</sup> In 2003, the U.S. Office of Management in its Circular A-76 adopted an expanded vision of contracting out.<sup>63</sup> Considerable controversy has ensued about what activities are inherently governmental, and in 2010 the White House issued draft language for new guidance.<sup>64</sup> Concerns about managed competition and contracting out more generally include fear that private firms will sacrifice public wellbeing to private profit, and that inherently governmental functions, such as those that affect public safety and health, are therefore not suitable for contracting out.<sup>65</sup>

## Findings

This study aims to identify policy options for the future of the Commonwealth of Virginia’s secondary highway system. The system poses significant challenges. Review of the origins of secondary road policy in the Commonwealth and past efforts to modify it and other relevant policy developments lead to the following findings.

**First, the Commonwealth secondary road system as currently configured is not an appropriate administrative apparatus for maintenance and operations of the roads it contains.** This 48,000-mile system is 20% unpaved roads and 0.8% divided highways, and includes cul-de-sacs and subdivision streets as well. The functional classification of the roads in the secondary system vary widely from principal arterials (1.3% of centerline miles), to collectors (21.5%) to local roads and streets (77.1%). The Virginia system is an artifact of the Byrd Act of 1932. The unwieldiness of the secondary system is a significant barrier many policy options for addressing the secondary road challenge.

**Second, the condition of the secondary system is deteriorating.** The secondary system currently has the highest percentage of deficient roads among all systems in the Commonwealth. Almost one third (31%) of the state’s secondary system is currently deficient according to VDOT assessments. In 2007, 24% of the secondary system was deficient -- one fourth of the system. VDOT estimates that in order to keep the system from getting worse it will

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<sup>62</sup> *Federal Activities Inventory Reform (FAIR) Act of 1998*, sec. 5(2)(A).

<sup>63</sup> U.S. Office of Management and Budget, “Circular A-76 (Revised), Performance of Commercial Activities.”

<sup>64</sup> Brodsky, “Administration puts its stamp on ‘inherently governmental’ (3/31/10) -- GovExec.com.”

<sup>65</sup> Chen, “Antecedents of Contracting-Back-In.”; Adams and Balfour, “Market-Based Government and the Decline of Organizational Ethics.”

need \$405 million for maintenance.<sup>66</sup> The fiscal year 2011 budget provides \$345 million.<sup>67</sup> “At the current level of funding, Secondary system pavements are estimated to continue to deteriorate at a minimum of three percent annually.”<sup>68</sup>

Given the dynamics of road deterioration, further deferred maintenance will increase the cost of returning the system to a state of good repair – the longer the deferred maintenance, the greater the cost of restoration to a state of good repair. Moreover, this relationship is not linear. Maintenance deferred in 2011 will cost substantially more to repair in future years. Thus, continued deferred maintenance creates an exploding unfunded liability for future years and decades of Virginia taxpayers.

While revenues have expanded over the years, the system has grown proportionally more both in terms of road mileage and miles travelled over the system. The secondary system currently carries 22% of the Commonwealth’s vehicle miles of travel.<sup>69</sup> The increasing costs of deferred maintenance, as well as the rising index prices of inputs to construction and maintenance operations, enlarge the financial requirements of maintaining the secondary system.

**Third, in recent years the VDOT secondary construction program has provided minimal funding support for constructing new roads in the secondary system.** In FY 2010 and FY 2011, counties received no state allocations for building new secondary roads. Five years ago total revenue available for secondary road construction totaled over \$200 million. Formulas in state code provide that the secondary system receive 30% of funds available in the TTF. This revenue is then distributed among counties according to their population and area, with population weighted at 80% and area at 20% (§ 33.1-23.4). However, this provision can be overridden, and in 2010 the HMOF received more than \$500 million of its \$1.8 billion in revenue from transfers out of the TTF. The *VTrans2025* (2004) report and a financing report prepared under the plan update to 2035 both identified this problem of “cross-over” funding, finding that all construction funds would be used for maintenance by 2018.<sup>70</sup> There have been no state funds available to fund construction on primary, urban or secondary roads for FY 2010 or FY 2011. Only a few highly urbanized counties have raised significant revenue inde-

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<sup>66</sup> Virginia Department of Transportation, *Biennial Report on the Condition of and Investment Needed to Maintain and Operate the Existing Surface Transportation Infrastructure for FY 2011 and FY 2012*, 12.

<sup>67</sup> Virginia Department of Transportation, *Fiscal Year 2010-2011 VDOT Annual Budget*, 21.

<sup>68</sup> Virginia Department of Transportation, *Biennial Report on the Condition of and Investment Needed to Maintain and Operate the Existing Surface Transportation Infrastructure for FY 2011 and FY 2012*, viii.

<sup>69</sup> Virginia Department of Transportation, *VMT report 2100, traffic year 2009*.

<sup>70</sup> Virginia Office of Intermodal Planning and Investment, *VTrans2025*, 2; Jack Faucett Associates, *Transportation funding: paying for performance*, 33.

pendently for building new roads, and most additions to the secondary system have been funded by private developers.

**Fourth, the current budget allocation process for maintenance funds gives relatively low priority to the secondary system.** In the past five years budgets for secondary road maintenance have declined by nearly 25%. In 2006 the program received nearly half a billion dollars, but in 2010 received \$336 million. These funds come from the HMOF, but Virginia Code does not specify what percentage will go to the secondary system. Instead, VDOT makes this determination in light of competing obligations to fund the interstate, primary, and urban systems. Once the total amount of funding for the secondary maintenance program is determined, VDOT distributes this among nine transportation service districts, which then apportion this money among counties within the districts. The Biennium Needs Assessment serves as the basis for determining total funding and the distribution among counties. The secondary maintenance budget is the product of collaboration between VDOT executives, and Central Office and district staff. And in a period of scarce resources, lower budgets for secondary may be the least bad option.

**Fifth, the current “devolution mechanisms” for construction and maintenance are not attracting county participation.** Both programs are structured to be cost-neutral to VDOT. They are designed to pass on funds currently spent by VDOT to counties to spend directly instead of through an advisory relationship with VDOT. The only difference would be that counties would receive the payments directly, instead of advising VDOT on how to spend the payments (§ 33.1-23.4; § 33.1-84.1). Maintenance payments to newly devolved counties would be equivalent to the monetary amount that VDOT currently spends on a per-lane-mile basis within the counties (§ 33.1-23.5:1). In 2006, VDOT designed a cost model to help make this determination, which estimated rates ranging from approximately \$6,000 to \$8,000 per-lane-mile in 2006, depending on the county. Payments to counties that devolved before 1986 (Henrico and Arlington counties) are set in code and rise according the method used for escalating payments to cities. In FY 2011 Henrico county is to receive \$9,101 per lane-mile for all of its streets, and Arlington county \$16,121. Rates to be paid to cities in FY 2011 are \$17,180 per lane-mile for principal and minor arterials and \$10,087 for collectors and local streets.<sup>71</sup>

**Sixth, county officials generally agreed that state payments, as currently set under Virginia Code, will not cover all the costs of a local road program for maintaining secondary roads.** Further, they indicate that one factor behind their reluctance to assume secondary maintenance programs was fear that payment rates would decrease in the future. Moreover, many felt

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<sup>71</sup> Virginia Department of Transportation, Local Assistance Division, “Payments to local governments: history of payment rates.”

that VDOT is a “good steward” of the resources it receives, and that counties would not likely be able to achieve equivalent efficiency in providing maintenance services. County officials value their close relationships with VDOT service districts, since this allows VDOT to respond to local maintenance needs more effectively. County officials did recognize that county-administered road programs could strengthen the advantages of effective responsiveness if adequately funded.

**Seventh, many counties have limited capacity to assume secondary maintenance responsibilities, both in fiscal and institutional terms.**

County officials expressed strong concern about any state mandate that would require them to use general funds to cover secondary road expenses. Further, only a few urban counties currently have significant road expertise in-house, and instituting full-service road programs would require significant start-up resources and professional transportation guidance. For example, Fairfax County has conducted the most extensive reviews of the logistics of implementing a road program. The Local Assistance Division of VDOT also provides support to counties interested in devolution, and in 2007 prepared a thorough Guidebook of road program requirements.<sup>72</sup> Since 2006, however, the Virginia Association of Counties (VACo) has opposed any requirement to “transfer ... responsibility to counties for construction, maintenance or operation of new or existing roads.” VACo also embraces the importance of an efficient transportation network, and generally opposes unfunded mandates.<sup>73</sup>

**Eighth, local control over local roads and streets affords significant opportunity to integrate decision-making over transportation and land use and improve development outcomes in terms of quality and timeliness.** Coordination of land use and transportation is challenging under the best of circumstances. Virginia’s system of state control over local roads and local control over land use decisions leads to significant challenges in achieving desirable outcomes. Recent changes in legislation regarding access management, secondary street acceptance standards, and traffic impact analysis have given VDOT more tools and authority in dealing with counties and the transportation impacts of the land use decisions they make. However, many interviewed for this study agreed that the process is awkward, time consuming, costly and generally challenging for landowners, developers and local officials.

Arlington County, on the other hand, which has local control over land use and local streets, is able to integrate decision making over land use and transportation to a greater extent than many other Virginia counties. Its di-

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<sup>72</sup> Virginia Department of Transportation, *Guide to County Assumption of Secondary Roads (Devolution Guidebook)*.

<sup>73</sup> Ted McCormack, Virginia Association of Counties, personal communication (May 2011); Virginia Association of Counties, “2011 Legislative Program.”

rector of transportation attributes its success to unified control, and the county has accepted responsibility for an additional state route, Columbia Pike, because it believes that unified control is essential to achieving its objectives as it redevelops that corridor.

**Ninth, local option transportation taxes have been successfully used throughout the United States to generate revenue for local road construction and maintenance programs.** These include fuel taxes, vehicle taxes, impact fees, and registration fees, among other types of revenue raising mechanisms.

While Virginia county officials interviewed for this project did not actively advocate new taxing authority, they did express interest in expanded revenue raising abilities. If counties take on increased secondary road responsibilities, they recognize that increased capabilities to raise revenue would be imperative to program success. These revenues could be used to supplement VDOT-funded services, whether provided by VDOT directly or through a county road program partially funded by VDOT payments. Examining the types of revenue authorizations available to cities could provide a basis for evaluating revenue raising mechanisms for counties. Procedures for financial governance could also be improved. One significant difference between counties and cities, which was cited by numerous county officials, is that cities can issue general purpose transportation bonds without referendum, while counties are required to gain approval through a referendum.

**Tenth, current secondary road acceptance procedures have and may continue to add roads to the secondary system in ways that exacerbate the maintenance budget shortfall.** Private developers that construct new subdivision streets may add them to VDOT's secondary system without making any provision for future maintenance costs.

**Eleventh, the August 2010 audit of VDOT by Cherry, Bekaert and Holland, L.L.P., provides a number of findings and recommendations related to the secondary road program.** Thorough review of these audit findings and their potential impact on the secondary program are beyond the scope of this report. However, some of the findings could potentially shed light on possible areas for improvement in the secondary program.

- The audit found that VDOT carries over significant levels of maintenance funds from year to year, and that current budgets may therefore permit higher levels of spending than are currently utilized.<sup>74</sup>
- The audit found that there is a long lag time – 2 or even 3 years – between the assessment of pavement conditions and the completion of the resulting maintenance paving project. The concern was that the

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<sup>74</sup> Cherry, Bekaert & Holland, L.L.P., *Performance Audit of Significant Operations of the Virginia Department of Transportation*, 40-43.



condition of a roadway could change materially between the time of its assessment and the commencement of a pavement improvement project.<sup>75</sup> Current and former VDOT officials indicate that the time cycle of the review process was keyed primarily to the timing of the Commonwealth's biennial budget cycle and that in practice paving contracts at the district level take into account current conditions. However, the audit findings may shed light on ways to ensure that spending allocation decisions are made using the most recent possible condition assessments.

- In 2007, VDOT adopted a new policy of "projectization" of maintenance paving projects in order to make them eligible for Federal Aid. As a result, some non-complex, low risk projects have been subjected to control procedures designed for complex projects. The audit found that this projectization policy appears to have contributed to significant delays in the implementation of simple maintenance paving projects, which make up a significant portion of secondary maintenance expenditures.<sup>76</sup>

## Options for Secondary Road Policy

Based on the findings presented in the previous section, this section sets forth options for policy makers to address the Commonwealth's secondary road challenge. In some cases, the different policy measures listed below can be used in combination.

### ***Maintain Current Policy on Construction and Maintenance Devolution***

The default policy option is to do nothing, which essentially entails leaving the current voluntary devolution provisions place, and continuing on the current trajectory of secondary road construction and maintenance expenditures.

Construction expenditures are currently prioritized by VDOT in collaboration with county Boards of Supervisors, and counties have the option to supplement VDOT construction. In recent years, VDOT-financed construction has fallen precipitously, to zero for FY 2010 and FY 2011, but if revenues to the TTF rebound with economic recovery, some VDOT funds for secondary road construction may materialize in the future. Counties retain an option to participate in engineering and construction contract letting and administration.

Regarding maintenance, counties retain the option to receive an amount comparable to VDOT's historic expenditure using a rate per lane-mile. That rate was approximately \$6,000 to \$8,000 per lane-mile based on 2006 esti-

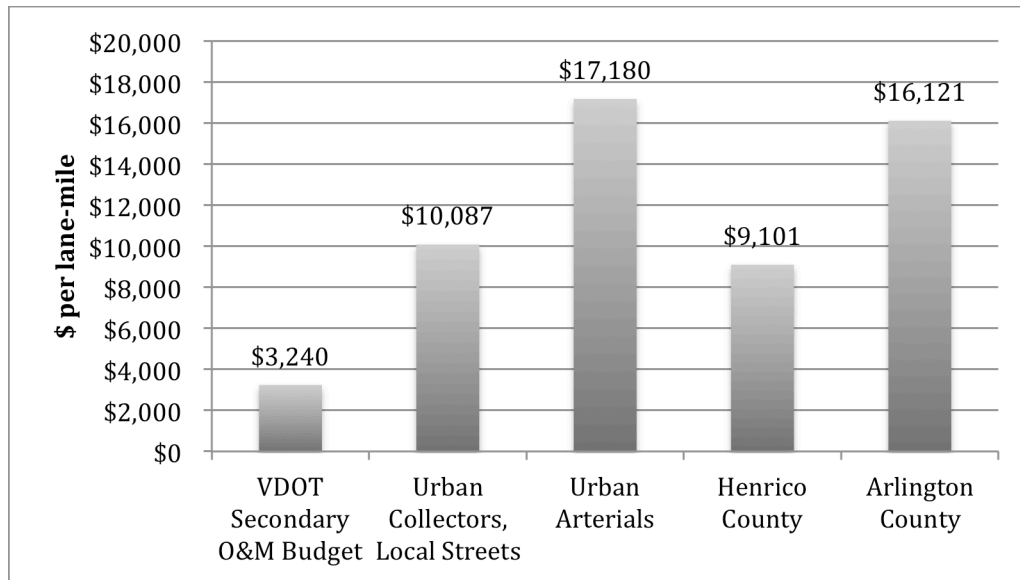
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<sup>75</sup> Ibid., 21-22, 45-46.

<sup>76</sup> Ibid., 46-47, 57.

mates. However, the VDOT FY 2011 budget for secondary maintenance and operations is \$3,240 per lane-mile (excluding the Central Office). This compares to \$9,101 per lane-mile being paid to Henrico county, \$16,121 per lane-mile to Arlington, \$17,180 per lane-mile for urban arterials, and \$10,087 for urban collectors and local streets (see Figure 5).<sup>77</sup> The current devolution policy does not guarantee future payments or payment levels to counties. From the counties' perspective, this may raise concerns about accepting responsibility for maintenance under significant uncertainty about future VDOT payments.

**Figure 5: Secondary System Payment Rates and VDOT Budgets (FY 2011)**



*Note:* VDOT figure excludes Central Office O&M budget of \$20,467,045.

The Local Assistance Division of VDOT has provided a thorough devolution guidebook to break down the service functions that an expanded county transportation department would need to perform. In the event one or more counties exercised this option, their experience might encourage (or discourage) other counties to follow suit. However, it is unlikely that any counties would embark on this path. In November 2010, Fairfax County completed another assessment of whether to take on greater responsibility for its secondary roads but as of this writing has taken no further steps to do so.

This option would also continue to defer maintenance and allow the condition of the secondary system to deteriorate, increasing the cost of returning the system to a good state of repair in future years.

<sup>77</sup> Virginia Department of Transportation, Local Assistance Division, "Payments to local governments: history of payment rates."

### ***Maintain Current Policy with Enhanced Budgetary Priority for Secondary Road Construction and Maintenance***

The Commonwealth could maintain its current policy but enhance its attractiveness to counties by raising the priority given to secondary road construction and maintenance budget allocations, possibly allowing the transfer of personnel at the local residency level to counties that agree to assume responsibilities for secondary roads. Uncertainty about future construction and maintenance budget allocations is a paramount concern for many county officials. Giving greater priority to secondary road construction and maintenance could allay such county concerns.

The difficulty with raising the priority of secondary road construction and maintenance budget allocations is that it necessarily requires reducing the priority of other budget allocations. The Commonwealth's ability to do this is limited by federal requirements that give first priority to Interstate and National Highway System maintenance. Alternatively, the Commonwealth could increase the overall budget allocation for transportation construction and maintenance, which could "raise all ships." But the declining budgets for construction and maintenance are exactly the source of the problems posed to the current policy.

### ***Restructure the Secondary Road System***

The Commonwealth could restructure the secondary system as part of a broader reclassification and adopt a "core network" along the lines discussed in 2009. Under such an approach, the portions of the current secondary system that are of regional or statewide importance would shift to the core network. Such a core network would comprise all the Commonwealth's significant roads and streets, and they would be classified into a single administrative system that could be the focus of maintenance and operations.

The remainder of the secondary system would be functionally more cohesive, and could be a candidate for other policy options. Such options would include continuing VDOT's responsibility in counties other than Arlington and Henrico, partial or complete devolution to counties, and partial or complete outsourcing of some or all maintenance and operations functions.

### ***Consider Performance-Based Maintenance Contracting on the Secondary System***

The Commonwealth could explore options for utilizing performance-based maintenance contracting (PBMC) for some or all of the secondary road system for some or all maintenance and operations functions. In doing so, it may wish to consider using a quality bid selection process in order to avoid problems associated with low bid selection.

PBMC has been in several states and other countries for the management and operation of a range of road types. Virginia has been a leader in the U.S. in using PBMC for its Interstate highways. Other states in the U.S. and other countries have used PBMC for lower level road types, including local roads and streets and unpaved roads.

Portions of the Commonwealth's current secondary system pose particular challenges for application of PBMCs. For example, because of the manner in which most secondary roads were added to the system under the Byrd Act in 1932, much of the secondary road system's right of way is held only by "prescriptive easement" for a width of 30 feet, the width of secondary roads constructed prior to the creation of the state secondary system.<sup>78</sup> Thus, defining the limits of a right-of-way in which a contractor has access can be difficult to specify contractually.

A second challenge for implementing PBMCs for secondary roads is the extent to which these roads literally touch virtually every property in the Commonwealth outside of cities, towns, and the two counties of Henrico and Arlington. This level of direct interaction with the public by private contractors can lead to problems.

However, such issues can be managed. For example, Roadway Management, Inc., a PBMC firm, requires its clients to have trained public employees to field phone calls from the public to answer questions and receive complaints. These employees are trained to use the firm's software in order to be able to answer questions about when service is scheduled.<sup>79</sup> Such a practice could be considered for any Virginia implementation of PBMC for secondary roads.

### ***Empower Counties to Raise Revenues***

The Commonwealth could empower counties to impose so-called local option transportation taxes. With the enhanced fiscal capacity such taxing authority would provide, counties may more readily embrace responsibility for secondary road construction and maintenance. Examples of such taxes include local gas taxes, vehicle licensing and registration fees, sales taxes, payroll and income taxes, natural resource extraction taxes and impact.

Virginia counties have rather limited capacity to raise funds for transportation investment. Cities have greater authority to raise revenue and currently exhibit much higher levels of transportation involvement. Indeed, the difference in authority between cities and counties in Virginia recently prompted discussion that Fairfax County seek conversion to a city, although the County's recent draft report on road policy concluded that it was not worth the

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<sup>78</sup> Miller, Clark, and Grimes, *A management plan for historic bridges in Virginia*, 10-11.

<sup>79</sup> Rob Maggard, Roadway Management, Inc., personal communication.

time and effort it would require.<sup>80</sup> The ability of cities to raise revenue without referendum contrasts with the need of counties to put all transportation bond measures up for public vote.

### ***Impose Devolution on All Counties***

The Commonwealth could impose responsibility for secondary road construction and maintenance on all counties. Under this option, VDOT could allocate its secondary road maintenance funds by a legislative formula, similar to the way it currently divides its construction funds based on land area and population. A formula might also factor in the lane-miles in each county, and/or use a cost model similar to VDOT's 2006 cost model to reflect the relative costs of maintaining roads in different counties.

Many counties would likely have significant concerns about this option. Particular objections may grow out of the state of repair of any assets that are turned over to the counties. Since almost a third (31%) of the secondary system currently has deficient pavements, counties may argue that VDOT should bring facilities to a state of good repair before transferring them to county responsibility. The cost of such improvements for secondary pavements alone has been estimated at \$1.3 billion.<sup>81</sup> Any such option would also require careful implementation. Many counties do not have the technical expertise required to launch and operate a road division, although such capacity could certainly be developed over time.

A further issue with this option is the level of funding, if any, to counties. Because secondary maintenance receives relative low priority in the current budget allocation, the funding level available to be allocated to counties to support their secondary programs is likely to be stable at best, and more likely to continue to decline as costs on other systems with higher priority continue to rise.

### ***Impose Devolution for Select Urban Counties***

The Commonwealth could impose responsibility for secondary road construction and maintenance selectively on more "urban" or highly developed counties. The Commonwealth currently requires cities with more than 3500 residents to be responsible for their local roads and streets. Indeed, the area that was previously Nansemond County incorporated into the City of Suffolk in the 1970s and recently assumed responsibility for all of its roads. Lane-mile payments to cities are higher (by approximately 40%) than those estimated to counties under VDOT's 2006 cost model, and much higher than VDOT's current expenditures per lane-mile for the secondary system. VDOT

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<sup>80</sup> Somashekhar, "Fairfax County Executive Suggests Converting to a City."; County of Fairfax, Virginia, Department of Transportation, *Alternatives for improving roadway services in Fairfax County (DRAFT)*, 6.

<sup>81</sup> Sorrell, "Maintenance and operations program for FY 2011 budget," 13.

could not provide all urbanized counties the same level of funding as cities without greatly expanding its budget. As mentioned above, counties with demographic and land use patterns similar to cities do not have the same authority to raise revenue, which could be problematic if they assume responsibility for secondary roads and require additional funding.

However, certain metrics can help identify which counties are financially and operationally best suited to administer road programs. Virginia Transportation Research Council's 1998 study identified 15 "urban" counties, based on measures of population density per square mile and growth.<sup>82</sup> These counties absorbed a significant share of all of VDOT's spending on secondary roads, and may be most likely to be able to successfully establish their own road programs. While some of these counties may eventually choose to incorporate as cities, applying them to the city-standard for maintaining roads may help mitigate some of VDOT's operational burdens.

Narrowing VDOT's responsibilities to those roads which only have a strong link to larger intercity and regional flows of traffic may provide a more rational structure, and thereby allow better responsiveness and focused attention to the different types of roads according to their respective characteristics.

### ***Take Maximal Advantage of the VDOT Performance Audit***

The Commonwealth may wish to take maximal advantage of the August 2010 performance audit of VDOT identified several areas related to the secondary system that may afford opportunities for improving construction and maintenance outcomes. Areas of particular relevance for the secondary road program include:

1. The carryover of funds from year to year may indicate that a higher level of spending is possible within current budgetary allocations.
2. The lag time between the collection of asset condition data and the completion of associated paving projects may afford opportunities to improve the extent to which project allocations are based on the most recent condition data. (Interviews with current and former VDOT employees suggest that in practice districts do take account of more current asset condition data in project allocation.)
3. The "projectization" policy may merit reconsideration for some maintenance projects. In particular, if the secondary system is restructured, improvements to lower order facilities could be candidates for more streamlined review.

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<sup>82</sup> The counties were Fairfax, Prince William, Loudoun, Stafford, Spotsylvania, Fauquier, Albemarle, Bedford, Henrico, Chesterfield, Hanover, York, James City, and Gloucester. The report states that 14 counties were studied but lists 15. O'Leary, *Beyond the Byrd Road Act*, 3.

## **Possible Hybrid Policy Options**

Possible combinations of policy options presented above may offer opportunities to address problems with the secondary system. Possible hybrid options include:

1. Combine performance based maintenance contracting (PBMC) with system reclassification and devolution for select urbanized counties and guarantee a payment stream for an initial contract term. With appropriate legislative authority, VDOT could partner with a large urban county like Fairfax to contract out some or all functions for secondary operations and maintenance. The county could be the contracting party, with VDOT guaranteeing payments for some fixed term, such as 7 years. The county could then have authority over the contractor, greater control over local streets and have a guarantee of financial support for the first term of a contract. The county would also be able to exercise unity of control over transportation and land use decisions in a way that is difficult under current policy. Such a policy could be piloted in a limited area of the county, like Tyson's Corner, where the county anticipates significant change in land use in coming years in response to the expansion of the Washington Metro system. Because VDOT may have better purchasing power for some materials such as asphalt and aggregate, the contractor could be allowed to piggyback on VDOT's contract for such materials.
2. Combine PBMC with system reclassification and contract out for a group of rural counties. With appropriate legislative authority, VDOT could retain ownership arrangements for secondary roads (whether owned by the Commonwealth or held as prescriptive easements) while testing the concept of PBMC for secondary roads. A piggyback arrangement for some materials could also be included. Such an option could disrupt long-term VDOT employment in some rural communities, and appropriate provisions for displaced workers would be required.

Other hybrid policy options may merit consideration.

## **Concluding Remarks**

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## Appendix 1: List of Interviewees

Burgess, Gerald, Botetourt County  
Cole, Steven, West Virginia DOT, Engineering Director  
DeBruhl, Jennifer, VDOT Local Assistance Division, Assistance Administration  
Dicks, Chip, Virginia Board of Realtors  
Hanson, Robert, Director of Operations Planning, VDOT  
Hicks, Stephen, James City County, Development (formerly VDOT in Williamsburg)  
Ichther, Kathy, Fairfax County, Director DOT  
Lawson, John, Chief Financial Officer, VDOT  
Leach, Dennis, Transportation Division Director, Arlington County, Virginia  
Maggard, Rob, Roadway Management, Inc.  
McCormack, Ted, Virginia Association of Counties  
Menker, Neal, Virginia Municipal Association  
Moore, Adrian, Policy Fellow, The Reason Foundation  
Moore, Robert, Fairfax County Transportation  
Nielsen, Eric, Stafford City  
Pakkala, Pekka, Helsinki University of Technology  
Reeter, Mark, County Administrator, Washington County, Virginia  
Smith, Barbara, Chesterfield County, Virginia  
Sorrell, Andy, Transportation Planner, Cumberland County  
Sorrell, Connie, Chief of Operations, VDOT  
Sprayberry, Mike, Florida Department of Transportation  
Summerlin, Benny, County Administrator, Henry County, Virginia  
Thompson, Mike, Jefferson Institute; Chair, McDonnell Administration's Government Reform Committee  
Toalson, Mike, Home Builders Association of Virginia  
Wanner, Sandy, County Administrator, James City County  
Warfield, Andrea, consultant  
Ybarra, Shirley, The Reason Foundation; former Virginia Secretary of Transportation